Love: a noble madness?

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This thesis has been composed by myself

and the work contained herein is my own

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"*...the greatest of blessings come to us through madness, when it is sent as a gift of the gods*"

Plato

Abstract

Throughout literary history, love has been described as a form of madness, which bears a likeness to a manic state in its simultaneous mix of euphoria and dysphoria. The aim of this study is to explore empirically the similarities and differences between the states of love and mania. It is hypothesised that "passionate" love is part of the spectrum of mania in terms of symptomatology, equivalent to hypomania in level of psychological disruption. It is proposed that emotion regulation plays a mediating role in the expression of manic symptoms in either state.

Data relating to symptoms reported in mania by 121 adults with bipolar disorder were compared to symptoms reported by a control group relating to recalled episodes of love. A sub-group of 18 individuals with bipolar disorder completed questionnaires relating to episodes of love. Comparisons were made between symptoms of love and mania between and within groups.

The profile of manic and depressive symptoms in love and mania were found to share striking similarity and were significantly correlated. Emotion regulation strategies were found to correlate with the degree of severity of symptoms reported.

The finding that love and mania share such similar profiles is discussed in terms of implications for diagnosis and classification of spectrum disorders. The mediating role of emotion regulation in the manifestation of psychopathology in love and mania is explored. Attachment theory is proposed as a useful framework for conceptualising the underlying system shared by both states. The role of cognitive appraisal of emotional states in the severity of psychological and functional disruption in love and in mania is discussed and proposed as an appropriate level for clinical intervention.

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1 Introduction

This thesis begins from the premise that pathology lies not within an emotional state itself, but in the way in which it is managed. The aim of this study is to determine what may be learned from the exploration of the experience of "normal" emotional states, their comparison with those that are deemed pathological and the ways in which individuals manage these states. Specifically, it aims to consider the similarities and differences between the emotional state of love or infatuation and the psychiatric condition of mania.

Firstly, this Introduction will provide an overview of the history and current understanding of bipolar disorder. Psychological models and approaches to treatment of the disorder will be reviewed, concluding with a discussion of psychological aspects of mania. Secondly, a number of theories of love will be reviewed with an emphasis on those pertinent to the consideration of aspects of love being similar to a manic state, followed by a brief discussion of emotion regulation. Finally, the two areas will be brought together to highlight the aims and objectives of the thesis.

1.1 Bipolar Affective Disorder

1.1.1 History of Bipolar Disorder

> *"Medical writers distinguish two kinds of Madness, and describe them both as a constant disorder of the mind without any considerable fever; but with this difference, that the one is attended with audaciousness and fury, the other with sadness and fear: and that they call mania, this melancholy. But these generally differ in degree only. For melancholy very frequently changes, sooner or later, into maniacal madness; and, when fury is abated, the sadness generally returns heavier than before."* Richard Mead (1762)

Mania and melancholy have been described with a remarkable consistency of language for thousands of years. However, the two have only been described as a single disease entity since the mid 19th century, when two French psychiatrists, Falret

and Baillarger, independently but almost simultaneously, formed the hypothesis that mania and depression could both be expressions of a unitary illness.

> "*There is a certain category of patient who continually exhibits a nearly regular succession of mania and melancholia. This seemed sufficiently important to us to serve as a basis for a specific mental disorder, which we call circular insanity because these patients repeatedly undergo the same circle of sickness, incessantly and unavoidably, interrupted only by rather brief respites of reason*"
>
> (Falret, 1854, quoted by Goodwin & Jamieson, 1990)

> "*There exists a special type of insanity characterised by two regular periods, the one of depression and the other of excitement...this type of insanity presents itself in the form of isolated attacks; or, it recurs in an intermittent manner; or, the attacks might follow one another without interruption*"
>
> (Baillarger, 1854, quoted by Goodwin & Jamieson, 1990)

Emil Kraepelin was the first to use the term "manic-depressive" in 1899 to describe the circular psychoses and simple manias. By 1921 he had distinguished manic-depression from dementia praecox, and described it in his work "Manic-Depressive Insanity and Paranoia" as a single, morbid process. Kraepelin came to this conclusion from a variety of observations: firstly, that there were recurrent "*common fundamental features*"; secondly, that the "*morbid forms...not only pass over the one into the other without recognisable boundaries, but that they may even replace each other in one and the same case*" (pg. 2) (i.e. the mixed state of mania and melancholia); thirdly, the uniformity of prognosis with a more benign course of the illness, and lastly (and, in Kraepelin's view, most definitively) the hereditary nature of traits held within the spectrum of mania and depression: "*in members of the same family we frequently enough find side by side pronounced periodic or circular cases, occasionally isolated states of ill temper or confusion, lastly very slight, regular fluctuations of mood or permanent conspicuous colouration of disposition*" (pg. 3).

Kraepelin's definition of "manic-depressive insanity" was broad and included "...*on the one hand the whole domain of so-called* periodic and circular insanity, *on the other hand* simple mania, *the greater part of the morbid states termed* melancholia *and also a not inconsiderable number of cases of* amentia" (Kraepelin, 1921, pg.1). Kraepelin's view of manic-depression conceptualised within a medical disease model prevailed in Europe; however in the first half of the twentieth century American psychiatry was heavily influenced by psychoanalytical, psychological and social theories of mental disorders, such as those of Adolf Meyer. Manic-depression was conceptualised by the Meyerians as a psychopathology precipitated by an interaction between an individual's biological and psychological factors and social environment. European mainstream psychiatry, however, retained its medical model of disease, uninfluenced by psychoanalytic theory or psychosocial models of illness.

The next major contribution to the nosology of affective disorders was the work of Leonhard (1957) who observed that within Kraepelin's broad definition of manic-depression some people had only a history of depression with no history of mania, whereas others had a history of both. This distinction between unipolar and bipolar illness was not made explicit until the 10th revision of the International Classification of Diseases (ICD-10) (WHO, 1992), and was incorporated in the Diagnostic and Statistical Manual – third edition (DSM-III, APA) in 1980.

In the early 1970s, a study by Feighner and colleagues of the range of affective disorders led to the separation of primary from secondary affective disorders (Feighner *et al.*, 1972). Secondary affective disorders were characterised as illnesses with the characteristics of primary depression or primary mania but occurring in the context of a pre-existing psychiatric illness or life threatening medical illness.

Dunner and colleagues (1976) studied patients with primary affective disorder who had been hospitalised for mania at least once and separated them from a group who had a history of hypomania (the less severe state of mania) but who had been hospitalised for depression only. They proposed that those patients who had experienced a manic episode of sufficient severity to warrant hospitalisation should be designated as having Bipolar I disorder, whereas those who only had a history of hypomania with depression were deemed to represent a different subtype and should

be designated as Bipolar II. This distinction has been incorporated into the DSM classification system.

Unipolar mania is a relatively rare occurrence and documented in only a few studies. Leonhard (1957) found less that ten percent of his bipolar group to have only experienced mania with no history of depression; in other studies (e.g. Perris, 1966; Angst, 1969) pure mania has been observed in less than five percent of cases. However, no differentiating factors have been found between those patients who report only manic episodes and those with bipolar disorder in terms of family history, course, treatment or clinical features of mania, so pure mania has generally been considered to be a variant of bipolar disorder. It seems likely that these patients may have had unreported episodes of depression or have not been followed long enough to eliminate the possibility of future depressions (Goodwin & Jamieson, 1990).

1.1.2 Classification

Bipolar disorder is classified as a mood disorder within DSM-IV (APA, 1994). The episodes of mood disturbance that can be included within a diagnosis of bipolar disorder include a) an episode of major depression; b) a manic episode; c) a mixed episode and d) a hypomanic episode (the full diagnostic criteria for major depression, mania, mixed episode and hypomania may be found in Appendix 1).

A major depressive episode requires the presence of five of the following symptoms nearly every day over the same two-week period, representing a change from previous functioning and causing significant distress or impairment in social, occupational or other important areas of functioning. One of these symptoms must be either 1) "*depressed mood*" or 2) "*loss of interest or pleasure*" (DSM-IV, pg. 356):

1. depressed mood most of the day as indicated by either subjective report or observation made by others;

2. markedly diminished interest or pleasure in all, or almost all, activities most of the day;

3. significant weight loss when not dieting or weight gain, or a decrease or increase in appetite;

4. insomnia or hypersomnia;

5. psychomotor agitation or retardation;

6. fatigue or loss of energy;

7. feelings of worthlessness or excessive or inappropriate guilt (which may be delusional);

8. diminished ability to think or concentrate, or indecisiveness;

9. recurrent thoughts of death, recurrent suicidal ideation without a specific plan, or a suicide attempt of a specific plan for committing suicide.

A manic episode is characterised by a distinct period of abnormally and persistently elevated, expansive or irritable mood, for a duration of at least one week, during which three or more of the following symptoms have persisted and have been present to a significant degree:

1. inflated self-esteem or grandiosity;

2. decreased need for sleep (for example, feel rested after only three hours of sleep);

3. more talkative than usual or pressure to keep talking;

4. flight of ideas or subjective experience that thoughts are racing;

5. distractibility (i.e. attention too easily drawn to unimportant or irrelevant external stimuli);

6. increase in goal-directed activity (either socially, at work or school, or sexually) or psychomotor agitation;

7. excessive involvement in pleasurable activities that have a high potential for painful consequences (e.g. engaging in unrestrained buying sprees, sexual indiscretions or foolish business investments).

A manic episode may also include psychotic features.

A "mixed episode" is diagnosed when the criteria for both major depressive and manic episodes are met every day for the duration of at least one week, with a severity sufficient enough to cause marked impairment in social, occupational or interpersonal functioning. In a review of the phenomenology of mania, Goodwin and Jamieson (1990) reported that 70-80 percent of individuals with mania report symptoms of depression and irritability, rather than elation. In a factor analysis of manic symptoms, Cassidy *et al.* (1998) found five independent factors, of which dysphoric mood (the most significant factor) was shown to have a bimodal distribution. Consequently the suggestion has been made that mixed state bipolar disorder may be an entity in itself (Cavanagh, 2003).

The diagnostic criteria for hypomania are as for mania but of shorter duration (for four days rather than a full week) and without the presence of delusions, hallucinations or psychotic features. In contrast to a manic episode, social, occupation or interpersonal functioning is not disrupted and there are no psychotic features. However, the change in functioning must be observable by others and "clearly different from usual non-depressed mood".

DSM-IV draws a distinction between a diagnosis of bipolar I disorder, which requires the presence of at least one manic episode during the patient's life course, and bipolar II disorder which describes people who experience episodes of recurrent major depression and hypomania, but without ever meeting the criteria for a full manic episode. The diagnosis of bipolar II disorder is confounded owing to reportedly high levels of co-morbidity with other psychiatric disorders such as anxiety, bulimia, substance abuse and personality disorders (Perugi *et al.*, 1998). Cavanagh (2003) notes that the accuracy of the diagnosis may be dependent upon the accuracy of a patient's memory, and mood (state) dependent recall bias can be a

significant factor in diagnosis; when high, previous highs are remembered, and when low, only previous lows are likely to be recalled.

Some bipolar patients (either Type I or II) display four or more cycles within a year and are therefore characterised as having "rapid-cycling" bipolar disorder.

Also included within the DSM-IV classification of bipolar disorders is cyclothymic disorder, which is distinguished from bipolar I and II by its chronicity and seems to represent a subsyndromal cross between rapid-cycling bipolar disorder and dysthymia. Cyclothymia is characterised by the presence of numerous periods of hypomanic symptoms and depressive symptoms that do not reach sufficient severity to meet the criteria for major depression. These characteristics have been found to predate a major affective illness, but also can persist throughout life without progressing to bipolar disorder (Howland & Thase, 1993).

Secondary mania is characterised as occurring in the context of a pre-existing psychiatric illness or incapacitating medical illness. According to Krauthammer and Klerman (1978) secondary mania is characterised by onset later in life and by no family history of affective disorder. It seems to occur with the influence of drugs, infection, neoplasm, epilepsy and metabolic disturbance and careful history-taking and medical examination needs to be carried out in order to differentiate secondary mania from late onset bipolar I disorder (Krauthammer and Klerman, 1978).

1.1.3 Clinical Description

Bipolar disorder is a chronic illness characterised by its episodic course. Typically, illness episodes of depression and mania, or hypomania, alternate with periods of recovery and normal functioning between times. There is an increasing frequency of relapse over the course of the initial few episodes and a high risk of attempted and completed suicide (Chen & Dilsaver, 1996).

Mania is characterised by euphoric or irritable mood, faster speech, rapid thought and greater activity levels, both physical and mental. The senses become heightened, and there is a tendency to impulsiveness and sociability. While some people when

manic can come across as cheerful and optimistic with an infectious gaiety, others can be irritable and emotionally labile, which may translate as anger (Goodwin & Jamieson, 1990).

The degree of mania may be reflected in the individual's behaviour, for example, in choice of clothing (usually brightly coloured but poorly matched), in high activity levels, often starting many new things but finishing nothing. The need for sleep is greatly reduced with early morning wakening, and there may be an increase in appetite and sexual behaviour. The grandiosity and expansiveness of thought and ideas may manifest itself in extravagant and extreme behaviour, such as spending vast sums of money or giving up one's job or relationship, with little insight into the impact of these behaviours (Jamieson, 1994). The level of hyperactivity and extreme behaviour is often distressing not just for the sufferer but also for those who experience its effects vicariously (Jamieson, 1990).

Manic mood is grandiose and elated but often interspersed with periods of depression and extreme irritability (Jamison, 1994). As the severity of the manic episode increases, thinking can become psychotic and delusional and increasingly incoherent, as Leonard Woolf wrote in describing Virginia Woolf's illness:

> *"She talked almost without stopping for two or three days, paying no attention to anyone in the room or anything said to her. For about a day what she said was coherent; the sentences meant something, though it was nearly all wildly insane. Then it gradually became completely incoherent, a mere jumble of dissociated words."* (Woolf, 1964, pg.172).

Hypomania was described by the French in the 19th century as a "*folie raisonnante*", an "*insanity without disorder of intellect*" (Goodwin & Jamison, 1990). Mendel (1881) was the first to define hypomania as "*that form of mania which typically shows itself only in the mild stages abortively, so to speak*".

Hypomania is less severe than mania in that the cognitive and behavioural changes seen during a manic episode tend to be moderate. Hypomanic mood is elevated and ebullient, but fluctuating and volatile, and almost invariably brings with it an underlying irritability (Goodwin & Jamieson, 1991). Angst reported that in a

community sample the most common manifestations of hypomania were less sleep, more energy and activity (both occupational and social), increased self-confidence, optimism, enjoyment of work and laughter; an increase in spending and consumption of alcohol, cigarettes and caffeine; rapid thoughts; more ideas and plans; increased sex drive and decreased inhibition (Angst, 1998).

Whether or not the experience of unipolar depression is clinically different from the depressive phase of a bipolar illness is an unresolved matter. Perris (1966) found the profile of depressive symptamotology to be the same in bipolar and unipolar depressed patients, however a number of other studies have found differences over a wide range of clinical features, such as that unipolar depressed patients experience greater levels of anxiety, physical complaints and psychomotor agitation (e.g. Beigel & Murphy, 1971), whereas bipolar patients in a depressive phase exhibit greater sleep disturbance and increased mood lability within episodes (e.g. Brockington *et al.*, 1982).

1.1.4 Epidemiology

Data concerning the epidemiology of bipolar disorder have been problematic due to disagreements over classification and diagnosis of the illness. Most European epidemiological studies have utilised Kraeplin's (1921) definition of manic-depression as all forms of serious and recurrent affective illness, which is far broader than the definition used by American researchers. The distinction drawn between those people who experience a recurrent pattern of mania and depression (bipolar I disorder) and those who experience episodes of hypomania and depression (bipolar II disorder) also contributes to variability of reporting in epidemiological studies.

Bipolar disorder is relatively common, with around 1 – 1.5 % of the population affected (Ramana & Bebbington, 1995). It is well established that there are higher rates of unipolar depression in women, however this is not the case for bipolar illness, which is consistently reported to affect equal numbers of men and women (e.g. Weissman *et al.*, 1988). Its onset is typically in late adolescence and early adulthood, with studies reporting the mean age of onset to be anywhere between 19

years (Burke *et al.*, 1990) to 28 years (Goodwin & Jamieson, 1990). Angst *et al.* (1973) reported that 90 percent of cases begin prior to the age of 50. There is an increasing body of literature documenting symptoms of manic-depression in younger teenagers and children (e.g. Bowden & Rhodes, 1997). This shift to an earlier onset of bipolar disorder is accompanied by the observation that the incidence of bipolar disorder appears to be increasing (Gershon *et al.*, 1987). This trend is not yet well understood, however several factors have been proposed in explanation, such as the increase in the use of drugs and alcohol and the increase in incidence of life events, for example, social mobility and divorce, which are not only stressful in themselves but also serve to reduce levels of social support known to buffer psychiatric illness (Goodwin, 1999).

In contrast to illnesses such as schizophrenia, there is little evidence of any association between bipolar disorder and social class, except perhaps a tendency for rates to predominate in the middle and upper social or professional groups (Weissman & Myers, 1978; Coryall *et al.*, 1989). However, the methodological problems of diagnostic bias and over-inclusiveness and treatment bias make interpretation of this association difficult. Goodwin and Jamieson (1990) point out that upper and middle class people are more likely to be diagnosed as manic-depressive, whereas lower class people are more likely to receive a diagnosis of schizophrenia, often erroneously.

No consistent relationship between marital status and bipolar disorder has been established, although some epidemiological studies report that it is more common amongst single and divorced people. However, Krauthammer and Klerman (1979) point out that marital status may be a consequence of bipolar disorder as opposed to being a cause of it.

Cross-cultural comparisons of bipolar disorder are problematic in light of difficulties in methodology, maintaining the integrity of diagnostic criteria and gaining funding for such studies. Further, societal values about what is defined as pathological vary widely, making estimates of the cross-cultural incidence of bipolar disorder difficult. Goodwin and Jamieson (1990) suggest that much of what has been labelled in non-Western cultures as "schizophrenia" may in fact be a form of manic-depression.

Goodwin and Jamieson (1990) collated studies of seasonality of affective episodes and report that seasonal patterns in both depression and mania have been observed, with peaks in spring and summer. They note several methodological problems with studies of this kind, for example that treatment of bipolar disorder with lithium has altered the course of the disease for about 50 percent of sufferers (Clayton, 1981) which will inevitably impact on the natural pattern of seasonal variability.

1.1.5 Course

> "*While occasionally attacks run their course within a few weeks or even a few days, the great majority extend over many months. Attacks of two or three years duration are very frequent; isolated cases may last considerably longer, for ten years and more.*" Kraepelin (1921, p.73)

Bipolar disorder is a recurrent illness. Early estimates suggested that few patients experienced more than three episodes of mania or depression in total. However, these estimates have been revised recently: current estimates using clinical criteria, rather than hospitalisation, to indicate episodes of illness suggest that on average a person with a diagnosis of bipolar I disorder will experience 8-12 major depressive episodes and 4-8 manic episodes over his/her lifespan (Lam *et al.*, 1999). The probability of recurrence of the illness within a few years has been estimated to be as high as 90 percent (Tohen *et al.*, 1990).

The definition of "onset" of bipolar illness varies between studies from being the first occurrence of symptoms requiring treatment (e.g. Angst, 1978) to the first symptoms meeting diagnostic criteria for an affective episode (e.g. Roy-Byrne *et al.*, 1985). Consequently, estimates of the proportion of patients whose illness begins with either a manic or a depressive episode vary greatly. Those studies with the highest estimates of manic onset use hospitalisation as the marker for onset, but on average across studies fifty percent of bipolar patients are reported to begin their illness with a manic episode (Goodwin & Jamieson, 1990).

The onset of bipolar disorder can be sudden, often with no apparent precipitating event. Kraepelin (1921) described the onset of manic episodes as variable, sometimes

beginning with a period of anxious or mournful mood, or being preceded by a depressive episode lasting for months or even years. Carlson and Goodwin (1973) described three identifiable stages of mania beginning with hypomania and progressing through to delirious psychotic mania. In some patients the onset of mania was found to gradually unfold along the progression, whereas others experienced a very sudden, dramatic onset with only transient features of the earlier stages.

In contrast to the onset of mania, bipolar episodes of depression often take much longer to develop, occuring over the course of many weeks (Winokur, 1976). However, their onset is still more abrupt than in unipolar depression. In one study of episodic patterns of affective episodes, Winokur *et al.* (1969) found that depressive episodes were more likely to be preceded and succeeded by periods of stable mood, whereas 50 percent of manic episodes had been immediately preceded by a depressive one, and 58 percent succeeded by depression.

The clearest characterisation of the course of bipolar disorder in patients who were treated for their affective episodes but did not receive prophylactic treatment between episodes, is reported in a study by Grof and colleagues (1974). The average manic episode was found to last for about three months, and the average depressive episode for four months. No relationship was found between the duration of each episode and the increasing number of episodes experienced. In a summary of similar data, Goodwin and Jamieson (1990) agree with Grof *et al.*'s suggestion that an initial cycle length of 40-60 months decreases with subsequent episodes to between 10-30 months after the third episode. This decrease in the interval between each episode stabilises at around episode 5-7 with an interval of about 5-10 months. Tohen and colleagues (1990) reported that an individual's future course of illness and estimated time to relapse was most usefully predicted by his or her past history of episodes of illness.

Before modern treatment became available, the mortality rate in people with manic disorder was high. For example, between 1912 and 1932 the death rate of manic patients in hospital was over 20 percent, 40 percent of whom died from "exhaustion" (Derby, 1933). In a review of 15 studies of the coincidence of suicide and bipolar disorder, Goodwin and Jamieson (1990) found mortality rates ranging from 20 to 56

percent. A more recent study reported the mean rate of suicide to be 15 percent (Simpson & Jamieson, 1999).

1.1.6 Aetiology and Biological Treatments of Bipolar Disorder

Bipolar disorder is widely held to be the most genetically influenced of all the psychiatric disorders due to the high probability of affective disorder in relatives of those affected. For example, Bertelsen *et al.* (1977) reported pair wise concordance rates of 74 percent among bipolar monozygotic twins, as opposed to 43 percent in unipolar monozygotic twins. The role of neurotransmitters in the pathogenesis of bipolar disorder has been highlighted as it appears that the changes in mood seen in patients with bipolar disorder reflect alterations in the activity of one or more of the primary neurotransmitter systems in the brain (Silverstone & Romans-Clarkson, 1989).

The therapeutic value of lithium was discovered in 1949 but was not used in the treatment of bipolar disorder until the 1960s. Prior to this, chlorpromazine, an antipsychotic, was the treatment of choice for acute mania. Other classes of drug used in the treatment of acute mania include anticonvulsants (such as carbamazapine) and neuroleptics (such as haloperidol) (Goodwin & Jamieson, 1990).

A number of well-conducted clinical trials have provided overwhelming evidence that lithium reduces the risk of relapse in bipolar disorder (e.g. NIMH/NIH consensus conference statement, 1985). However, more recently, Solomon and colleagues (1995) have reported that up to 50 percent of patients treated with lithium relapse within two years. The potential of lithium to prevent relapse is highly dependent upon compliance as there is a greater likelihood of mania occurring in patients who have stopped taking lithium than in those that have never started (Mander, 1986). It has been estimated that between 20-50 percent of patients discontinue lithium treatment (Jamieson *et al.*, 1979) for a variety of reasons, including its side effects (Vestergaard *et al.*, 1980) and its successful prevention of elevated mood, which patients miss (Folstein *et al.*, 1982).

1.1.7 Psychological Models of Bipolar Disorder

The biological paradigm has historically dominated understanding of bipolar disorder (Goodwin, 1998). This dominance has driven research into genetic and biochemical factors and, until more recently, research into the psychological aspects of this illness has largely been neglected. Bipolar disorder is now generally understood as being caused by an interaction of biochemical, psychological, physiological and genetic factors, but comprehensive psychological theories of bipolar disorder remain limited (Wright & Lam, 2003). While there has been extensive research into the psychological nature of unipolar depression, there is disagreement about whether the depressive state of unipolar depression is qualitatively different to the depressive phase of bipolar disorder. As Carroll (1994) points out, there is a need for any psychological model of bipolar disorder to account for manic as well as the depressive symptoms, because it is the same person who cycles between extremes of positive and negative self-perception.

1.1.7.1 Cognitive Model of Bipolar Disorder

Wright and Lam (2003) propose a cognitive model of bipolar disorder based upon Beck's (1967) cognitive model for affective disorder which takes into account biological vulnerability, dysfunctional cognitions, behaviour and mood in manic depression (see Figure 1).

Wright and Lam hypothesise that two sets of dysfunctional attitudes relating to extreme-achievement and dependency interact with a biological vulnerability, euphoric or dysphoric mood and "manic" or "depressive" behaviour (for example, lack of routine and impulsive behaviour, or social withdrawal and decreased activity). This hypothesis was drawn from Beck's (1983) proposal that manic individuals have a tendency towards autonomy, whereas people in a depressive state tend towards over-dependency on others. Lam and colleagues (1999) further suggested that extreme achievement orientated attitudes in bipolar individuals may lead to extremes of goal directed activity and irregular routine. Wright and Lam (2003) postulate that bipolar individuals therefore may be conflicted between depending on others to validate their personal worth yet striving for independence from others.

1.1.7.2 Behaviour Activation System Dysregulation Model

The Behaviour Activation System (BAS) governs approach behaviour, such that it is activated by conditioned and unconditioned positive incentive stimuli (Gray, 1990). Exposure to reward elicits behaviour patterns associated with BAS activity such as incentive-reward motivation and emotional states such as desire and curiosity. On the basis of the correspondence between the features that characterise high levels of BAS activity (e.g. positive emotion and engagement in goal-directed activity) and the symptoms of hypomania, Depue, Krauss and Spoont (1987) have suggested that in bipolar disorder the BAS is poorly regulated. Wright and Lam (2003) suggest that in bipolar disorders, BAS dysregulation may manifest itself in the inability of the system to return the mood state to its set point. Depue and colleagues (1987) propose that bipolar depression represents extreme under-activity of the BAS. This weak regulatory mechanism within a biological system constitutes the biological vulnerability in bipolar disorder which is maintained by changes in cognition (processing signals of reward) that channel behaviour towards reward (in mania) or away from reward (in depression) (Wright & Lam, 2003).

1.1.7.3 Disrupted Circadian Rhythms Model

A number of clinical features of bipolar disorder, such as diurnal mood variation, early morning wakening and seasonal patterns of relapse, may be associated with circadian disruption and it has been suggested that such situations that serve to disrupt circadian functioning are associated with an elevated risk of relapse in bipolar disorder (e.g. Healy & Waterhouse, 1995). It is argued that disruption of circadian rhythms leads to dysphoria and that elation may be a side effect of internal attribution of changes in energy level and cognitive functioning (Lam *et al.*, 1999). In mania, the hypothesis is that the behavioural responses of individuals to the cognitive distortions associated with increased activity levels tends to disrupt routines which would normally provide the context for stabilisation. Jones (2001) proposes a link between the disruption of circadian rhythms and the affective symptoms of bipolar disorder and integrates this approach with Power and Dalgleish's (1997) model of emotion in order to provide a psychological mechanism by which the disruption of circadian rhythms may result in these affective symptoms.

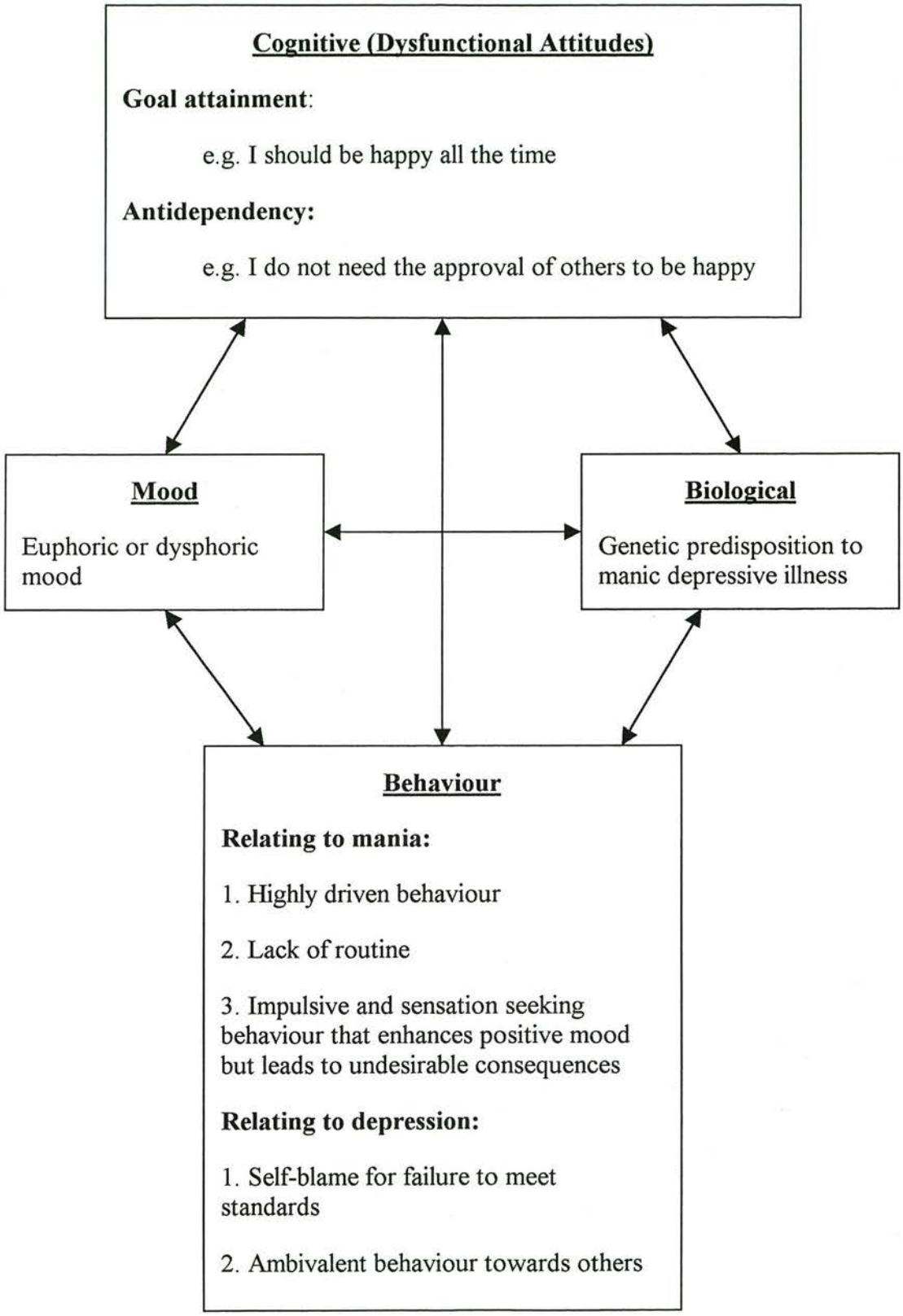

Figure 1 Cognitive model of bipolar affective disorder (adapted from Wright & Lam, 2003).

According to the Schematic, Propositional, Analogical, Associative, Representation Systems model (SPAARS) (Power & Dalgleish, 1997), behavioural changes resulting from disruption to circadian rhythms activate dysfunctional schematic models of lower level (analogical and associative) phenomena related to sleep, jet-lag, daylight changes and so on. The cognitive appraisal of these changes in bipolar disorder as indicating elevated or depressed mood leads to maladaptive behaviours such as risk-taking, disruption of routine and sleep loss which in themselves cause further circadian disruption feeding back into the process (Jones, 2001).

1.1.8 Psychological approaches to the treatment of Bipolar Disorder

Psychological interventions are increasingly being developed for use with people with bipolar disorders based upon the psychological models of the disorder outlined above. Lam and colleagues (1999) have applied the principles of Cognitive Behaviour Therapy to develop a psychological therapy for people with bipolar disorder. Their approach incorporates aspects of the circadian disruption hypothesis into a diathesis-stress model: stressors (such as life events or highly driven behaviour) lead to poor social routines or sleep deprivation, which interact with a biological vulnerability (such as suggested by the circadian disruption hypothesis) triggering a prodromal stage of illness. This does not necessarily lead to an acute episode, but depends upon the individual's use of coping strategies. Lam and Wong (1997) identified good coping as being associated with higher social functioning which in turn predicts longer intervals between episodes (Gitlin *et al.*, 1995). Lam *et al.* (1999) propose therefore that intervention at the prodromal stage of illness is important in the management of bipolar illness, and that cognitive behaviour therapy is a useful framework for intervention at the psychosocial level. Four aspects of therapy are considered important: psychoeducation about bipolar illness as a diathesis-stress illness; cognitive-behavioural skills to cope with prodromes; importance of structure, routine and sleep; and managing long-term vulnerabilities.

Evaluation of cognitive behaviour therapy for bipolar disorder has shown that it is associated with longer intervals between episodes of manic relapse, higher social

functioning and employment (Perry *et al.*, 1999). Lam and colleagues (2000) have also reported that 12 patients who had undergone cognitive behaviour therapy over a six month period had significantly fewer episodes of illness and fewer hospitalisations during the year following therapy. In addition, self-report and observer ratings indicated significantly lower levels of manic and depressive symptoms over the course of the year.

1.1.9 Psychological Processes in Mania

The term "bipolar" suggests that mania lies at the opposite pole of the spectrum in the affective range. However, early accounts of mania (as far back as 200AD) suggested that mania is an extreme end-state of depression (Goodwin & Jamieson, 1990), and others have suggested that the high level of activity seen in mania is a more important feature of the state than elevated mood (Bauer, 1991). Early psychoanalytic writers suggested that mania serves as an extreme defensive function against threat to self-esteem (and, therefore, depression), a proposal known as the "manic-defence hypothesis". Abraham (1911/1927) postulated the view that the depressive and manic phases of manic depression reflect the same psychological pathology but that whereas in the depressive phase the individual is weighted down by them, in mania they are treated with indifference and the individual is able to ignore them. Rado (1928) argued that the function of mania is to destroy the introjected "bad object" that would otherwise lead to depression. In a reformulation of the manic-defence hypothesis in line with modern cognitive psychology, Neale (1988) hypothesizes that unstable self-esteem in conjunction with high expectations of oneself predispose an individual to bipolar disorder. Grandiose cognitions associated with the manic phase serve to displace other negative, distressing cognitions from consciousness, resulting in extreme elevation of mood and consequent behaviour. Bentall and Kinderman (1999) have argued that cognitive processes involved in mania may have much in common with depression, based upon the observation that depression in a manic episode is frequently as common as euphoria (Goodwin & Jamieson, 1990). Euphoria has been noted to be characteristic in only the first of three stages in a manic episode (Carlson & Goodwin, 1973). The

second stage tends to be characterized by anger and irritability; in the third, depression, panic and delirium are evident. Further, Kotin and Goodwin (1972) observe that depression scores in mania are at times higher than when they are in a depressive phase of the illness.

According to Power and Dalgleish's (1997) theory of modularisation of basic emotions, under some conditions recovered depressives should be "too positive." Power (1999) suggests that if there is a failure of integration of positive and negative aspects of the self in depression, then in recovery, when the positive aspects of the self are dominant, there should be less regulation of the positive state because negative aspects of the self may be unavailable or excluded at such time. These uncomfortable mood states are, at their extreme, noted to be present in mania and hypomania.

1.1.10 The Spectrum of Mania

Kraepelin (1921) commented on the wide spectrum of affective disorders, noting in some individuals "*slightest colourings of mood, some of them periodic, some of them continuously morbid, which are on the one hand to be regarded as the rudiment of more severe disorders, on the other pass over into the domain of personal predisposition*" (pg.1). The original Greek meaning of the term "hypomania" is that it is hierarchically below mania. It was introduced in DSM-IV to fill the gap between full mania and the normal experience of everyday elation (Goodwin, 2002). Diagnostically, the major distinguishing feature is the degree of functional impairment between the two states, and the duration of the elevated mood state. The upper boundary between mania and hypomania is highly ambiguous and depends upon ones interpretation of the terms "severe" and "marked" with respect to the degree of disturbance caused. In a similar vein, the lower boundary between hypomania and normal states of elation is equally ill-defined. Angst's (1998) community cohort study in Zurich detected mania or hypomania (as diagnosed according to DSM-IV criteria) in 5.5% of the population but noted that if the criteria for duration and severity of hypomania were applied less rigorously, three lesser categories of recurrent brief hypomania, sporadic brief hypomania and sub-

diagnostic hypomanic symptoms could be identified in 1.5%, 1.3% and 11.3% of the population respectively. However, the incidence of bipolar disorders in Zurich was 0.5% (bipolar I) and 3% (bipolar II). This study suggests that there may be a significant proportion of the population with psychopathology not far below the level recognised as the highly disruptive and distressing illness of manic-depression. This observation led Goodwin (2002) to pose the question, are such spectrum states illnesses at all?

1.2 Love

In this section several theories of love will be reviewed, with an emphasis on describing those aspects of each theory pertinent to the possible comparison of love with the experience of mania or hypomania. The history and clinical description of disorders of love will also be discussed.

1.2.1 The ambiguous and elusive nature of love

"How do I love thee? Let me count the ways."

(Elizabeth Barrett Browning, 1850/1932)

Love is perhaps the most sought after emotional state of them all, but is one of the more elusive psychological constructs (Berscheid, 1988). It is a state central to our emotional lives, and countless books have been written on the subject in the world of popular psychology. However, it has only been in more recent years that the study of romantic or passionate love has become an acceptable topic for systematic and scientific study by psychologists. As Sternberg and Grajek (1984) observe, people have been known to lie, cheat, steal and even kill in the name of love, yet no-one knows quite what it is.

In the English language, the word "love" is used to express a multitude of emotions about many different things, such that it has become almost meaningless. One may

"love" chocolate, football or a job, but in an utterly different sense to the way in which ones children are loved and different again to the romantic love one has for a partner. As Voltaire observed, "*there are so many sorts of love that one does not know where to seek a definition of it*" (quoted by Solomon, 1981).

Of the emotions, love is the most ambiguously defined of them all. Negative emotions such as anger, shame, fear and disgust are far easier to define and to distinguish from positive emotions such as excitement and joy. Perhaps the ambiguity about the nature of romantic love as an emotion stems from a fundamental disagreement about whether it is a positive or negative emotion, as anyone who has been in love can testify that it can indeed be the source both of great happiness and intense pain. Tennov (1979) interviewed over 500 lovers who, on the whole, all agreed that passionate love is a bitter-sweet experience, a roller-coaster of emotional states ranging from elation to despair, anger to jealousy, joy to sadness. Love as *glucopicron* (sweet-bitter) was first expressed by the Greek poet, Sappho:

"love the loosener of limbs shakes me again, an inescapable bitter sweet creature"

(Translation, Trypanis, 1971, pg.150)

Emotional states such as anger, fear and sadness have been shown to be experienced in a similar fashion across cultures; love, however, is not. In the west, we have a language of "happy love", as demonstrated in a study carried out by Shaver, Wu and Schwartz (1991). Americans and Italians were found to equate love with positive affective states such as happiness. In contrast, the Chinese were found to associate love with negative emotional states such as sadness. Passionate love translates in Chinese as "sad love", "unrequited love" or "infatuation".

How then might love be conceptualised? Is there one, general factor of love, or are there many?

1.2.2 Psychoanalytic perspectives of love

Freud was uncertain about the matter of passionate love. He observed that falling in love is a "*sickness and craziness, an illusion, a blindness to what the loved person is*

really like" (Freud, 1915), and that *"love...is a sort of sublime madness, wresting the individual from the safety and self-satisfaction of his filial, social and moral anchorage"* (Freud, 1914).

Most psychoanalytic understandings of erotic love view it as a form of regression to earlier infantile states, a return to the original condition of unconscious oneness such as to childhood or to the mother's womb (Jung, 1926). Colman (1994) observes that the repetition between lovers of the original love affair between a mother and her baby is easy to see. The pain of separation and loss of the mother can be alleviated if only for a time through the sensation of falling in love and recreation of the lost relationship.

1.2.2.1 Love as attachment

Hazan and Shaver (1987) have used attachment theory (Bowlby, 1969, 1973, 1980) as a framework for understanding the dynamics and function of love and how it relates to loss and grieving.

Bowlby's theory of attachment describes the process whereby infants become emotionally attached to their primary caregivers and emotionally distressed upon separation from them. The theory was developed upon the observation that young children on separation from their caregiver go through a predictable set of emotional reactions. Firstly, the child *protests* through crying and searching for the caregiver, resisting attempts at consolation by others. The second stage is that of *despair*, a state of sadness. The third stage is that of *detachment*, where the child will disregard and avoid the caregiver upon their return.

Bowlby hypothesised that attachment has a major biological function in protecting infants from predators. He described it as a behavioural system with an observable set of behaviours, such as crying, smiling, making eye contact and so on, designed to maintain close proximity with the caregiver. Bowlby proposed that attachment behaviour is critical in the functioning of other human behavioural systems (such as care-giving, mating, affiliation and so on). A child who does not have the secure knowledge of his caregiver's continuity and consistency is unable to explore his

environment and make social contact with others as he becomes preoccupied with regaining contact with his caregiver.

Bowlby (1988) claimed that it is through attachment relationships that children construct internal working models of themselves, others and the relationships that exist between themselves and others. These models serve to regulate the child's emotions and social behaviour. Bowlby summarises his theory as follows:

> "*The first [proposition] is that when an individual is confident that an attachment figure will be available to him whenever he desires it that person will be much less prone to either intense or chronic fear than will an individual who for any reason has no such confidence. The second proposition concerns the sensitive period during which such confidence develops. It postulates that confidence in the availability of the attachment figures, or a lack of it, is built up slowly during the years of immaturity-infancy, childhood, and adolescence-and that whatever expectations are developed during those years tend to persist relatively unchanged throughout the rest of life. The third proposition concerns the role of actual experience. It postulates that the varied expectations of the accessibility and responsiveness of attachment figures that individuals develop during the years of immaturity are tolerably accurate reflections of the experiences those individuals have actually had.*" (Bowlby, 1973, pg.235).

Ainsworth and her colleagues (1978) observed that different types of attachment exist, which are dependent upon the degree of sensitivity and responsiveness of the caregiver to the infant. In an experimental "strange situation", they found that approximately 60 percent of infants are *securely* attached, 20 percent display *anxious/ambivalent* attachment behaviour, and 20 percent had an *avoidant* attachment to their caregiver. In subsequent studies a fourth style of *disorganise*d attachment behaviour, characterised by erratic, chaotic and fearful behaviour, has been described as present in approximately five percent of infants, typically with a background of emotional, physical or sexual abuse (Main & Solomon, 1990).

Hazan and Shaver (1987) carried out a study in which they placed a "love quiz" in a high circulation newpaper in the United States. Of the 1200 respondents, data from 620 were analysed (the results proved to be stable beyond this number). The quiz comprised fourteen subscales (such as trust, jealousy, desire and so on) derived from previous attempts to measure romantic love and on extrapolations from the literature on attachment relationships. Also included were questions about their relationships with parents and mental models of self and relationships. This information was used to divide respondents into groups relating to attachment type, according to Ainsworth *et al.*'s (1978) descriptions of attachment style. Due to the self-selected nature of the sample, a second study was carried out on a sample of 108 students. The two studies found three major styles of adult love based on the secure, avoidant and anxious/ambivalent styles of attachment. Individuals with different self-designated attachment styles were found to differ also in the way they characterised their most important love relationship. Those who had classified themselves as "secure" tended to report love as being a happy, trusting and friendly experience, and as being able to accept their partner in spite of their faults. In comparison, avoidant lovers were found to be characterised by a fear of intimacy, emotional highs and lows and jealousy. Anxious/ambivalent lovers experienced love as involving obsession, desire for reciprocation and union, emotional highs and lows and extreme sexual attraction and jealousy (Shaver, Hazan & Bradshaw, 1988).

Conclusions from these two studies are limited because of methodological problems, such as the brevity of the "quiz" (being constrained in space by newspaper editors) and that it was limited to enquiring about only one love relationship. Psychometric problems aside, the studies contain the inevitable questions of reliability associated with self-report measures. For example, people may be unable to articulate exactly how they feel in love relationships, or may have difficulty recalling the nature of their early relationship with parents. In addition, Main *et al.* (1985) have provided evidence that thinking and working through unpleasant childhood experiences can bring about change in people's mental models of relationships, a transformation difficult to capture in studies such as these.

However, what can be drawn from the two studies is that the nature of adult love relationships can be due at least in part to the attachment style developed in infancy to parents. According to attachment theory, sexual love is a re-creation and extension of loving and being loved that we have experienced as children (Oatley, 1992). Attachment theory was developed in order to explain loss and separation as well as attachment itself (Bowlby, 1969, 1973, 1980). Applying the attachment framework to adult love relationships may contribute to the understanding of the powerful emotional reactions that accompany broken relationships, however that end may have occurred (Shaver, Hazan & Bradshaw, 1988). Separation distress in young children tends to manifest itself as disturbed sleep, difficulty concentrating, restlessness, anxiety, tension and anger (Bowlby, 1973), not unlike a typical reaction to the loss of a partner, whether through separation, divorce or death. Bowlby argued that these reactions are primitively biological in nature, with their function being to regain proximity to the attachment figure. This idea has been applied in the psychoanalytic literature to the function of romantic love, suggesting that the purpose of being in love is to reassure against separation, anxiety and death (Chessick, 2000).

1.2.3 Passionate versus companionate love

The definitions and understandings of passionate and companionate love are broad, however they are both common themes in most theoretical writings about the nature of love. Tennov (1979) distinguished between "limerance", a passionate, painful sort of romantic love, and "love", which she viewed as a calmer state of friendship and support. Passionate love has also been described, particularly in the psychoanalytic literature, as "erotic love", from the Ancient Greek conceptualisation of sexual love, which was believed to come as a thunderbolt from the Gods, again with the emphasis being on the (typically) early stages of a love affair. In Ancient Greece, love was regarded as a painful affliction or madness (De Rougement, 1940/1983). Plato drew the distinction between sexual and spiritual love, sexual love being the first step on the ladder of love towards the contemplation of absolute beauty.

Hatfield and Walster (1978) proposed two general kinds of love: passionate and companionate love, with the former inevitably evolving to the latter in any enduring romantic relationship. The former encompasses what may also be called obsessive love, infatuation, love sickness, or being in love, whereas the latter refers to the less intense states of fondness, affection and tenderness.

Hatfield and Rapson (1993) attempt to define passionate love as:

> *"a state of intense longing for union with another. Reciprocated love (union with the other) is associated with fulfilment and ecstasy. Unrequited love (separation) is associated with emptiness, anxiety or despair. Passionate love is a complex, functional whole including appraisals or appreciations, subjective feelings, expressions, patterned physiological processes, action tendencies, and instrumental behaviours"* (1993, pg. 5).

Hatfield and Rapson's (1978, 1993) definition of passionate love encompasses both the positive and the negative, each being associated with reciprocated and unreciprocated love respectively.

Oatley's (1992) theory of emotion suggests that emotions function when rational solutions become unavailable. The phenomenon of passionate love fits into this model, as the power of such an emotional state enables people to act in a manner out of the ordinary and in extreme or otherwise irrational ways (Oatley, 1992).

1.2.4 Lee's (1976) typology of love

How many dimensions of love are there? Is there one single, general factor called "love", or are there many? Based on qualitative analyses of interview data, Lee (1976, 1988) claims that there are many types of love, which he calls "love styles". While individuals may have a *preferred* love-style, one is not precluded from the experience of the other styles, nor is one style of love for a person bound to remain

as such, but may evolve into another. Lee describes three "primary" love-styles (analogous to the primary colours) of *eros*, *ludus* and *storge*.

In Greek mythology, Eros was the God of Love whose arrows were shot through the eyes of the lover. The erotic love style begins with powerful physical attraction, or "love at first sight". Lee describes erotic love as an intense excitement instigated by the presence of a person who comes close to fulfilling the ideal sought after, with awareness of the rarity of their ideal. Whether or not the initial attraction wears off, an eros love-style will often convert through time into a more companionate love (Lee, 1988).

Storge is the ancient Greek word for affectionate love, such as exists between siblings or friends. Lee uses it to describe a type of companionate as opposed to passionate love.

Ludus is the Latin word for "game". The Ludic lover is described as a collector of love experiences, one whose style of loving is playful and non-committal. Ludic love is characterised by an avoidance of both intimacy and commitment and a wariness of emotionally intense people (Lee, 1976).

In Lee's typology of love styles, the three primary love styles may blend into an infinite number of secondary love styles, of which he describes the most familiar three styles in western society: *pragma* (logical, practical love), *agape* (selfless, altruistic love) and *mania*. Analogous to chemical compounds, the secondary styles are qualitative transformations of the "base primary elements"; thus *mania* is a compound of *eros* and *ludus*, but is qualitatively different to either (Hendrick & Hendrick, 1984).

Theia Mania is an ancient Greek expression meaning "the madness from the Gods". *Mania* was used in ancient Greece to describe the kind of love that strikes the lover like a thunderbolt from the Gods. It is an intense, possessive love with an obsessive preoccupation with the love object. It is a passionate, jealous love combined, however, with a fear of non-reciprocation. Inherent in manic love are the contradictions of love and hate, arising from its composite mixture of ludus and eros. Lee notes that it tends to be the first love style of adolescents, desperate to

experience the excitement and adventure of love. The subsequent labelling of this type of love as "infatuation" perhaps detracts from a valuable experience of the intensity with which love may be experienced. Adult experiences of manic love may be more unsettling than if experienced in youth. Manic lovers often appear to have lost their senses, going to absurd extremes to prove their love and are led to extreme displays of jealousy. Demonstrations of love vary with times of withdrawal to regain control. Lee (1988) suggests that a cycle of manic love affairs may be caused by the individual's desperate need to be in love – that is, "*to be in love with love itself*" (pg.47).

Hendrick and Hendrick (1984) developed an instrument to measure Lee's (1976) six love styles (the most common in Western culture) with a view to providing evidence that the six different conceptions of love do exist. Their conclusion was that Lee's (1976) theory is viable and that these six styles of love can be measured in a clear manner.

The items on the scale used to assess the manic love style are shown in Box 1.

1. When things aren't right with my lover and me, my stomach gets upset.

2. When my love affairs break up I get so depressed that I have even thought of suicide.

3. Sometimes I get so excited about being in love that I can't sleep.

4. When my lover doesn't pay attention to me, I feel sick all over.

5. When I am in love, I have trouble concentrating on anything else.

6. I cannot relax if I suspect my lover is with someone else.

7. If my lover ignores me for a while, I sometimes do stupid things to get his/her attention back.

Box 1. Manic love scale (Hendrick & Hendrick, 1984)

These items suggest that Mania is "symptom love" based on uncertainty of the self and the lover. Hendrick and Hendrick suggest that it may be most characteristic of adolescents, but can occur in older people.

The conclusion of Lee's work is that there is no one type of love, but many ways of loving. Lee's typology has been acclaimed as being exceedingly rich theoretically both because of its multidimensionality and its grounding in research (Hendrick & Hendrick, 1984). In addition, it encompasses less extensive theories of love that others have proposed, for example, Hatfield and Rapson's (1978) *passionate love* would equate with Lee's *erotic* love style, whereas *companionate love* would be equivalent to *storge*.

1.2.5 Sternberg's (1986) Triangular Theory of love

Sternberg's (1986, 1988) triangular theory of love holds that love can be explained in terms of three components that can be viewed as forming the vertices of a triangle: intimacy, passion and decision/commitment. Intimacy is primarily emotional in its composition and refers to feelings of caring, support and involvement towards another person. Passion, which is primarily motivational in character, refers to physiological arousal brought on by another person. It refers to the drives that lead to romance, physical attraction, sexual consummation and so on. Needs such as self-esteem, affiliation with others, dominance over or submission to others and self-actualisation may also contribute to the experience of passion (Sternberg, 1988). The decision/commitment component is cognitive in nature and refers to one's decision that one loves another (short term decision) and ones' willingness to stay in the relationship over time (long term decision). Seven possible subsets of types of love can be generated from all possible combinations of the three components: liking (intimacy alone), infatuation (passion alone), empty love (decision/commitment alone), fatuous love (passion + commitment), romantic love (intimacy + passion), companionate love (intimacy + commitment) and consummate love (intimacy + passion + commitment).

Sternberg conceptualises "infatuated love" (the passion component alone) as love that turns towards obsession with the partner being loved as an idealised object rather than as him/herself (Sternberg, 1986). Sternberg observes that people can be devoured or consumed by the love, so that it ends up taking time, energy and motivation from other aspects of one's life. In addition, infatuations tend to be characterised by a high degree of mental and physical impairment.

Sternberg likens the time course of passion to the standard pattern of addiction: rapid development of desire is followed by habituation. The ultimate loss of the object of one's infatuation results in symptoms of withdrawal such as depression, agitation, fatigue and so on, as seen following the withdrawal of a substance that one has become habituated to, to a level of functioning that is lower than existed pre-morbidly. "*In other words, one does not simply go back to the baseline-where one was before the person or substance entered one's life. Rather, one falls well below it, feeling strongly the effects of the withdrawal. Gradually, however, one starts returning to baseline.*" (Sternberg, 1988, pg. 131)

Sternberg (1997) developed the "Triangular Love Scale" in order to test his theory of love. The scale, measuring the three components of passion, intimacy and decision/commitment, was completed by 101 heterosexual adults who were currently in relationships. Factor analyses of the data revealed three factors, which corresponded to the components of passion, intimacy and decision/commitment. Lemieux and Hale (2000) administered the scale to 213 married individuals. Factor analysis of their data provided support for three distinct and reliable factors. In addition, stepwise regression analysis indicated that each component was a significant predictor of relational satisfaction.

1.2.6 Love as a physiological response

Walster (1971) proposed that people experience passionate love when they are intensely physiologically aroused, and given the context in which the arousal takes place "love" seems to be an appropriate label for these feelings. Walster however does not make any suggestions as to the source of the arousal.

Walster's (1971) theory is derived from an earlier experiment by Schachter and Latane (1964) in which subjects were injected with epinephrine, a drug which increases systolic blood pressure, muscle and cerebral blood flow and heart rate, resulting in hand tremors, palpitations, faster breathing and flushing. These physiological changes are observed in a variety of emotional states including fear, anxiety, anger and infatuation. Schachter and Latane observed that when the participants were exposed to different conditions intended to evoke a particular emotional response (such as euphoria, anger, irritation), those subjects who were administered the epinephrine without knowledge of its physiological effect showed greater emotional arousal that those who received a placebo or who were made aware of the drug's effects. Walster's (1971) interpretation of the results of this experiment is that when the cognitive appraisal of the situation justifies an interpretation of love (as in the presence of an individual to whom one is attracted), physiological arousal, from whatever the source, can lead to the conclusion that one might be in love.

Walster's (1971) physiological theory of love may not be sufficient in itself to explain the phenomenon of passionate love, but it may have a role in the second stage of Oatley's (1992) proposition regarding how one might fall in love. Oatley suggests that falling in love first requires some degree of willingness and secondly the arousal of interest by another person, which in Oatley's opinion may be more or less by accident such as novelty, attractiveness or even proximity. Perhaps at this point physiological arousal and cognitive appraisal enter the process adding strength to the conclusion that when the love object responds in an interested way, one must be in love.

1.2.7 Disorders of love

"Erotomania", also known as "de Clerembault's Syndrome", is a psychiatric disorder of love. It translates as "raving love" and is currently defined by DSM-IV as "*a delusion that another person, usually of higher social status, is in love with the patient*" (APA, 1994, pg. 297). It is exceedingly rare and usually affects only women (although Taylor *et al.*,1983, reported four cases in a series of 112 men charged with violent offences).

Berrios and Kennedy (2002) have identified four historical stages in the definition of erotomania. The earliest use of the term "erotomania" has been traced to the Greek author, Plutarch (AD. 50-125). From classical times up to the early eighteenth century erotomania was known as a"*general disease caused by unrequited love*".

> *"but I think that he was originally in love, and that he was dejected and spiritless from being unsuccessful with the girl, and appeared to the common people to be melancholic. He then did not know that he was in love; but when he imparted the love to the girl, he ceased from his dejection... "*
>
> Aretaeus (1856, pg.102)

The medical view that "lovesickness" correlates with a rapid pulse dates back to Galen, who wrote:

> *"she was suffering from one of two things: either from a melancholia dependent on black bile, or else trouble about something she was unwilling to confess... After I had diagnosed that there was no bodily trouble and that the woman was suffering from some mental uneasiness...somebody came from the theatre and said that he had seen Pylades dancing; then both her expression and the colour of her face changed...and I noticed that the pulse had become extremely irregular... Thus I found out that the woman was in love with Pylades...* (Brock, 1929, pg. 213-214).

Caelius Aurelianus (1950) took a different view from those physicians who believed love to be a remedy for madness, and instead proposed that love is in fact the cause of madness: *furoris amor fuerit causa* (pg. 557-9).

In the eighteenth century this view of erotomania as a general disease caused by unrequited love gave way and came instead to mean "*that form of madness caused by an excess of sexual appetite that leads to the belief that sex is the supreme objective enslaving the person to its practice: it is a form of melancholia, a true disease*" (Diderot & D'Alambert, 1754, quoted by Berrios & Kennedy, 2002). It became known as "nymphomania" and remained so until the nineteenth century when the definition of erotomania entered its third developmental stage and became described

as a "monomania", or a form of partial insanity, and was viewed as a mental disease caused by unrequited love. The final stage in the evolution of erotomania occurred in the late nineteenth century when it came to be understood as a simple delusional belief that one is loved by someone else. Reflection upon the historical evolution of erotomania as one form of psychiatric illness serves to illustrate the constructed nature of mental disorders in a manner that mirrors prevailing opinions of the era regarding love, sex and psychological disturbance.

1.2.8 The language of love and madness

The maniacal nature of love is reflected in our common use of expressions such as being "madly in love", to be "crazy" about someone, "lovesick". In popular songwriting love is commonly referred to as an incurable illness:

> "*There ain't no cure for love. All the rocket ships are climbing through the sky, the holy books are open wide, the doctors working day and night, but they'll never ever find that cure for love. There ain't no drink, no drug, there's nothing pure enough to be a cure for love*"
>
> ("Ain't no cure for love", Leonard Cohen, 1988).

Scheff (2001) in a study of love in popular songs observed that many romantic love songs express the idea of mental impairment with a vivid imagery of the craziness or insanity in mental disorders; indeed, many songs virtually *equate* love with mental disorder (See Box 2 for examples).

Scheff's discourse analysis looked further at the types of songs and the content of the lyrics and he notes that cognitive and physical impairments associated with mental disorders are often referred to in romantic songs as being symptomatic of love or infatuation, such as loss of appetite, inability to sleep, loss of control, obsession, compulsion, delusions and so on. Songs of heartbreak tend to contain more in the way of expressions of mental disturbance, rather than physical impairments, particularly compulsion and obsession.

The highs and lows of love's rollercoaster	*When I get to the bottom I go back to the top of the slide where I stop and I turn and I go for a ride till I get to the bottom and I see you again. Do you don't you want me to love you? I'm coming down fast, but I'm miles above you...* ("Helter Skelter", Lennon & McCartney, 1968)
	I find it hard to explain, it's crazy but it's happening and I'm falling again much farther than I've ever been, I'm falling deeper than the ocean, I am lost in this emotion. Love breaks and love divides, love laughs and can make you cry, I can't believe the ways that love can give and love can take away ("Love Gives Love Takes", The Corrs, 1997)
Love as a form of insanity	"Crazy for you" (Madonna, 1985)
	Crazy, crazy, crazy for you baby, What can I do, honey? I feel like the colour blue. I'm losing my mind, girl, 'Cause I'm goin' crazy ("Crazy": Aerosmith, 1992)
Love as an obsession	*Every breath you take, every move you make, every bond you break every step you take I'll be watching you* ("Every Breath You Take" The Police, 1983)
Physical impairment	*You can't eat, you can't sleep, there's no doubt you're in deep, your throat is tight, you can't breathe, another kiss is all you need* ("Addicted to Love", Robert Palmer, 1986)
	My tongue gets tied when I try to speak, my insides shake like a leaf on a tree ("All Shook Up", Elvis Presley, 1957)
The despair of unrequited love	*I can't live if living is without you* ("Without You", Nilsson, 1971)
	Nothing can take away these blues, nothing compares to you... ("Nothing Compares 2U", Sinead O'Connor, 1990)

Box 2. The "disorder" of love exemplified in the lyrics of popular songs

1.3 Regulation of Emotion

"The principle use of prudence or self control is that it teaches us to be masters of our passions" (Descartes, 1649/1955, pg. 427)

One of the fundamental principles of Western philosophy is "*the wisdom of reason against the treachery and temptations of the passions*" (Solomon, 1976), however there are differences in opinion as to the extent to which emotions should be controlled. Some philosophers (e.g. Ryle, 1949) have viewed emotions as troublesome deviations from normal functions and therefore should be corrected; others (e.g. Aristotle, trans.1941; Hume, 1739/1969) contend that emotions are not so destructive and therefore do not need to be strictly controlled.

Emotion regulation refers to the processes by which individuals influence which emotions they have, when they have them, how they experience them and how they express them (Gross, 1998). It is an area of particular interest in the field of developmental psychology given that self-regulation is recognised to be the foundation of organised behaviour (Maccoby, 1980). The developmental course of emotional regulatory processes across the lifespan has not yet been charted but it has been suggested that emotional control may increase with age (Gross *et al.*, 1997). Emotional regulation is a developmental task which seems to begin within the first three years, when children are observed to be able to distract themselves when sad, and develop self-soothing strategies to cope with upset, or to get to sleep. By middle childhood, children can regulate their emotions not only by changing the situation they are in, but also their thoughts (Carr, 1999). Children have been found to differ in terms of their thresholds for toleration of positive and negative affect (Derryberry & Rothbart, 1984) and some children are more able than others to use self-soothing as a way of regulating their emotions (Rothbart & Derryberry, 1981). According to attachment theory, relationships with significant caregivers serve a central role in the development of emotional regulation. As discussed above, children construct cognitive structures ("internal working models") of their relationship with an attachment figure, which guide the child's models of subsequent relationships

according to the shared affective experiences, and serve to regulate emotion and social behaviour (Bowlby, 1988).

Zeidner and Endler (1996) distinguish between problem-focused coping strategies (appropriate for controllable situational stressors such as school exams) and emotion-focused coping strategies (appropriate for uncontrollable stressors such as bereavment), both of which may be functional or dysfunctional. Functional external emotion-focused strategies include making and maintaining socially supportive friendships. Cognitive reframing, distraction and catharsis are examples of functional internal emotion-focused strategies that serve to regulate negative mood states arising from exposure to stress. Dysfunctional emotion-focused strategies include making destructive relationships, using denial rather than catharsis and engaging in wishful thinking as opposed to constructive reframing. Zeidner and Endler postulate that the development of functional emotion-focused coping strategies requires the presence of internal working models of relationships based upon secure attachment.

1.4 The shared state of love and mania?

Since the writings of Plato, descriptions of characters afflicted with a madness rooted in love abound in literature and poetry.

"When a lover is at hand the non-lover should be more favoured, because the lover is insane, and the other sane. For if it were a simple fact that insanity is an evil, the saying would be true; but in reality the greatest of blessings come to us through madness, when it is sent as a gift of the Gods."

(Socrates' speech in *Phaedrus*, Plato)

"Lovers and madmen have such seething brains,
such shaping fantasies, that apprehend
more than cool reason ever comprehends."

(A Midsummer Night's Dream – Act V, Sc. I 114-18)

Shakespeare commented frequently on the irrationality of love and its potential to "make fools of us all", *A Midsummer Night's Dream* being perhaps the most humourous illustration of love's many facets. In *As You Like It*, Rosalind observes, *"love is merely a madness, and I tell you, deserves as well a dark house and whip as madmen do: and the reason why they are not so punished and cured is, that the lunacy is so ordinary that the whippers are in love too" (*Act III Sc.2, line 386). The sufferings of Goethe's (1774) Werther illustrate the state of being in love as a stormy, irrational grand passion full of emotional turmoil. Love's similarity to one particular type of "madness", mania, is exemplified, for example, in the writings of Robert Louis Stevenson (1876/1988), who, about the experience of being in love, wrote "*it seems as if he had never heard or felt or seen until that moment; and by the report of his memory, he must have lived his past life between sleep and waking...a very supreme sense of pleasure in all parts of life, in lying down to sleep, in waking, in motion, in breathing, in continuing to be – the lover begins to regard his happiness as beneficial for the rest of the world and highly meritorious in himself*" (pp.8-9).

The Kama Sutra (Vatsyama, Trans.1962) lists the following degrees of love (perhaps just its passionate component): 1) love of the eye, 2) attachment of the mind, 3) constant reflection, 4) destruction of sleep, 5) emaciation of the body, 6) turning away from objects of enjoyment, 7) removal of shame, 8) madness, 9) fainting and 10) death. With the exception of the 6th degree, these could be read as a list of some of the features of hypomania.

Parallels between love and mania may also be drawn from academic literature. Psychoanalytic writings on love frequently refer to love as a form of madness: Ross (1991) in an essay on the psychoanalysis of erotic love refers to falling and being in love as "*a sense of abiding danger, pleasure and ecstasy, divine madness*"; Freud (1914) wrote that "*love...is a sort of sublime madness*"; Green (1993) described love as "*a private madness*". Prosen, Martin and Prosen (1972) have observed how the "middle age crisis" in men can trigger the search for an idealised woman, a search which can reach "hypomanic" intensity based on the hope of finding fusion with the distantly remembered fantasy mother of childhood (which he never finds).

Theoretical writings on the nature of love, particularly passionate or erotic love, bear a remarkable similarity to the nature of mania, in so much as one could substitute the subject word "love" for "mania" and the observations made about either state would remain within context. For example, Balint (1948) wrote that passionate and intimate states compromise a lover's reality testing such that either the longed-for lover comes to envelop the universe with his or her presence, or else the world becomes "garbled with beauty to his taste" so that its dangers and demands fade into the background. This observation could equally apply to the impaired reality testing seen in mania. Another example comes from a paper on the nature of love, desire and infatuation: "*the paradox of erotic love is that although it always speaks the language of the eternal and the infinite, it is in reality always temporal and limited*" (Colman, 1994). Substitute "erotic love" with the word "mania" in this sentence, and it would perhaps read as a description of the lack of insight shown by many individuals during a manic episode. Jacobson (1971) considered passionate love to be essentially a complex and sustained affective disposition, structurally rather like a mood in its amalgamation of emotion, fantasy and perception, but specifically object-directed and impelled. One could conceptualise mania in the same way, the difference being that it is not object-directed. Bak (1973) observed that being in love is often preceded by separation or by an important object loss real, imaginary or threatened, "*or by one of the numerous losses of object representations that lead to melancholia*" (pg.1). Bak suggests therefore that being in love is a way of avoiding melancholia on one hand or a regression to narcissism on the other by means of finding a substitute object in order to undo the loss. If one reads "being manic" in place of "being in love", one has a theory which sounds suspiciously like the manic defence hypothesis.

Others have also observed that love and mania may share a function in defending against depression. Vierderman (1988), for example, stresses the illusory aspect of passionate love, considering it to be an experience that enables one to escape the constraints of reality as one finds oneself in a passionate embrace, perhaps again not dissimilar to the delusional state of mania. Chessick (1999) illustrates this conceptualisation of love as a defence with analogy: "*falling in love reflects the grappling with a boundary situation, as does creative endeavour that serves the*

function of psychological self-repair for the artist". Alberoni (1983) goes further suggesting that the experience of falling in love originates in an extreme depression, an inability to find something that has value in everyday life. This is, of course, the well-known existential malaise, "*the profound sense of being worthless and of having nothing that is valuable and the shame of not having it*" (Alberoni, 1983, pg. 69). The experience of romantic love becomes one of liberation, fullness of life, and happiness, in which all alienation is temporarily extinguished.

As discussed previously, the dysphoric aspects of mania, such as emotional lability and anxiety are increasingly being recognised (e.g. Cassidy *et al.*, 1998). Kay Jamison (1995) has described the (sometimes forgotten) darker side of mania, that while on the one hand the euphoria and exhilaration can become addictive, mania can also be a "*dark, fierce and damaging energy*" (pg. 120). Similarly, Colman (1994) contrasts the poles of love: "*love can be a heaven, but it can equally be a hell, as terrible and ensnaring in one form as it is delightful and enchanting in the other*".

So far, these observations drawn from the literature have served to illustrate the shared aspects of the (supposedly) "normal" experience of falling or being in love, and the psychiatric condition of mania, which is deemed in western culture to be pathological. The differences between the two states may lie in a variety of sources, the obvious domain of aetiology, for example. Other differences are less categorical and may be considered to lie on a spectrum, such as the degree of functional impairment or emotional distress caused by each state. Also within this realm of individual differences are the management and coping strategies available to the individual afflicted with either state. Person (1988) describes passionate love as imaginative flashes that develop with people that cross our path, and observes that these flashes are "nipped in the bud" by the realistic situation in which there is not only no chance of reciprocation but usually the danger of a humiliating rejection. Perhaps the person who develops mania lacks the appraisal of the realistic situation and the management strategy of (metaphorically) nipping the "flash" in the bud.

1.5 The present study

The discussion and examples above quoted from literature and academic writings give rise to the testable hypothesis that the "normal" (i.e. non-pathological) state of passionate love or infatuation shares common aspects with the pathological state of hypomania (descriptions of love are rarely as extreme as the mental disruption observed in full mania, but more frequently resemble descriptions of hypomania). Should this be so, several further questions arise: is the emotional state induced by love part of the spectrum of mania? If love is demonstrated to be potentially as emotionally disruptive as hypomania, what are the differences between the ways individuals experience and manage these states that leads to the (perhaps culturally mediated) appraisal of one state as part of normal human experience and the other as a clinical condition? Are there differences between the ways in which individuals manage a potentially pathological but normal emotional state and how individuals who are diagnosed with bipolar disorder cope with their emotional states?

The aim of the present study is to explore empirically the similarities and differences between the states of love or infatuation and mania. The following hypotheses are proposed:

i. It is hypothesised that love is part of the spectrum of mania, equivalent to hypomania in symptomatology and its level of emotional disruption;

ii. It is hypothesised that unreciprocated love will be similar to the mixed state of mania, being a combination of emotional arousal and symptoms of depression;

iii. It is hypothesised that there will be an association between an individual's coping strategies (functional or dysfunctional) and the degree of psychopathology experienced in love (reciprocated or unreciprocated);

iv. It is hypothesised that individuals with bipolar disorder have a greater incidence of dysfunctional emotion regulation strategies than control subjects.

2 Method

2.1 Design

The design used was a between groups design. Comparisons were made between a control group and a group of individuals with bipolar disorder. Correlations were also computed within and across groups on some measures.

2.2 Participants

Participants in the study were 18 individuals with a diagnosis of bipolar I or bipolar II disorder attending the bipolar service at the Royal Edinburgh Hospital for assessment or individual treatment sessions.

The control group were an opportunistic sample of 65 adults comprising postgraduate students, acquaintances and colleagues of the author, of whom 44 participated in the study.

An existing data set was used in the comparison of the states of love and mania. These data were collected from a sample of 121 adults with bipolar disorder recruited through the Manic Depression Foundation (MDF) by Cavanagh, Power and Goodwin (2003) during their development and evaluation of the Bipolar Longitudinal Investigation of Problems questionnaire.

2.3 Measures

All participants were asked to complete four measures: the General Health Questionnaire, the Emotion Regulation Questionnaire, two copies of the Bipolar Longitudinal Investigation of Problems questionnaire and two copies of the DSM-IV criteria for a manic or hypomanic episode. Participants were requested to complete one copy of the BLIP and DSM-IV criteria for mania/hypomania with respect to their experience of being in love or infatuated with someone who had reciprocated their sentiments, and the second copy with respect to being in love or infatuated when their feelings had not been reciprocated.

Participants were asked their age, gender, whether or not they were currently in a relationship and how long ago the episodes were of reciprocated and unreciprocated love that they had used to complete the questionnaires.

2.3.1 Bipolar Longitudinal Investigation of Problems (BLIP)

To date, no specific scale is used to diagnose or measure mixed states of bipolar disorder; the current convention is to use the criteria specified by DSM-IV, which simply stipulate that criteria for both a manic episode and a major depressive episode are met "nearly every day for at least a one week period". This method of diagnosing a mixed episode has been widely criticised for its rigidity. Cavanagh, Power and Goodwin (2003) developed the BLIP as a novel scale designed to capture the mixed aspect of bipolar disorder (Appendix 5). The self-report scale consists of 18 items including the following domains of cognition, emotion and behaviour: physical activity, verbal activity, thought processes, voice level, mood, self-esteem, social contact, sleep, sexual interest, eating habits, weight change, meaning in life, anxiety, feelings of pressure, passage of time, future plans, pain sensitivity and work capacity. Each item was divided into four "manic" ("A" items) and four "depressive" ("B" items) components of increasing severity (1-4) centred about a normative value of zero (e.g. "this aspect of my behaviour was the same as usual"). Three items (10; "eating habits"; 13: "weight change" and 15: "passage of time") are reversed such that the "A" items are symptomatic of depression, and the "B" items are symptomatic of mania. The accompanying instructions ask respondents to recall their last manic or hypomanic episode and to note whether they experienced any of the symptoms listed in the scale. The instructions state that respondents may endorse one or more symptoms within the same item, as they may have experienced both "manic" and "depressive" symptoms during a single episode of mania. Cavanagh, Power and Goodwin (2003) report the internal reliability of the scale as 0.95 as assessed by Cronbach's alpha. The BLIP is currently undergoing validation using a process of cross-referencing each patient's retrospective report of mania using the BLIP with clinician's case notes written at the time of the manic episode.

For the purposes of the present study, the instructions for completing the BLIP were altered to read:

> *"Please try to think of a time when you were in love or infatuated with someone when your feelings were ("were not" for copy 2) reciprocated by the other person, and note whether or not you were aware of any of the following changes.*
>
> *In some cases you may wish to choose more than one item for each section, for example, for Question 1 (activity-physical) you might have felt more active for some of the time but less active for the rest of the time, in which case you should circle the numbers next to the two items that most closely applied."*

BLIP Data collected as part of routine assessment by the bipolar service for last episode of mania from those participants in the bipolar group who had chosen to identify themselves were collected from records.

An existing database of BLIP data for last episode of mania or hypomania (used in the initial validation studies of the BLIP) was accessed for the comparison of control subjects' experience of being in love with the experience of mania.

2.3.2 DSM-IV diagnostic criteria for a manic episode

The diagnostic criteria for a manic episode and hypomanic episode as stipulated in DSM-IV (APA, 1994) (Appendix 1) were combined into a checklist format (Appendix 7). Participants were asked to complete one copy of this checklist with respect to their experience of an occasion when they were in love or infatuated with someone and their sentiments had been reciprocated, and a second copy of this checklist with respect to an occasion where their sentiments had not been reciprocated. As a result of the self-report nature of this checklist, it is not possible to apply the diagnostic criteria to the individuals in this study as strictly as would be

possible through structured interview. The results of this measure are therefore reported firstly as a severity measure and secondly as a "crude" diagnostic measure.

2.3.3 Emotion Regulation Questionnaire

The Emotion Regulation Questionnaire (ERQ) (Appendix 4) is a 32 item scale developed by Phillips (2003) according to a conceptual model of emotion regulation. From current literature in the field, a number of general emotion regulation strategies were identified and arranged into a model of internal and external strategies and grouped according to whether these were deemed to be functional coping strategies (those that demonstrated an acceptance of the emotion) or dysfunctional coping strategies (those that demonstrated a rejection of the emotion). The items derived from each of these strategies were independently rated by experts in order to ensure that the items conformed to the postulated model of emotion regulation. The scale was validated with a population of adolescents in a study investigating quality of life. Significant correlations were found between the four emotion regulation scales and measures of quality of life indicating the construct validity of the emotion regulation scales. For instance, the external-functional emotion regulation scale (containing items such as "I talk to someone about how I feel") was found to have a significant correlation ($r=0.459$, $p=0.01$) with a "social support" quality of life scale. Significant correlations were also found between the dysfunctional emotion regulation strategies and emotions as precipitants of epileptic seizures (Phillips, 2003). Factor analysis of the 32 item scale revealed that 19 of the 32 items fit the model of internal functional, internal dysfunctional, external functional and external dysfunctional coping (Phillips, 2003). These items were selected for analysis in the present study.

2.3.4 General Health Questionnaire

The General Health Questionnaire was included in this study in order to investigate whether subject's reported level of symptomatology during their recalled episodes of love was related to their level of current functioning. The GHQ (Appendix 6) is a

well-validated self-report measure developed by Goldberg (1978) to detect non-psychotic psychiatric disorder in community and medical settings. The GHQ-12 (Goldberg, 1992) is a shortened version of the original GHQ-60 that shows equal validity and reliability. Each of the twelve items asks whether the respondent has experienced a particular symptom or behaviour in the preceding few weeks using a four-point scale: "less than usual", "no more than usual", "rather more than usual" or "much more than usual". The scale can be scored in one of two ways: GHQ scoring, where responses are scored 0, 0, 1 and 1 respectively; or Likert scoring, where responses are scored 0, 1, 2, and 3 respectively. The GHQ method is appropriate for detecting cases, whereas the Likert method is useful for comparing degree of disorder. Higher scores indicate a greater probability of clinical disorder.

Goldberg and Williams (1988) report the findings of several studies that have evaluated the psychometric status of the GHQ. The internal validity of the GHQ-12 as assessed by Cronbach's alpha is reported to be in the range of 0.82 to 0.90. Split-half reliability is reported as 0.83, and test - retest reliability as 0.73. Validation of the GHQ in terms of sensitivity in detecting cases of psychiatric disorder is reported to be 93.5 percent.

For the purpose of this study the GHQ was scored using the Likert method in order to provide a measure of the degree of current functioning, rather than caseness level of a psychiatric disorder.

2.3.5 Interview

Five participants from each of the bipolar and control groups who had chosen to give their name and a telephone number were interviewed in further detail about their recollections of falling in love and being manic or hypomanic (where relevant). This was an unstructured interview exploring the nature of individual's experiences of past or current love affairs focusing particularly the recall of emotional experience. Of particular interest when interviewing subjects in the bipolar group was their

experience of love with respect to its resemblance (or otherwise) to their experience of being manic and the ways in which they cope with each state.

2.4 Procedure

An amendment to the ethical approval for an ongoing research project by the Bipolar Service at the Royal Edinburgh Hospital was sought and obtained by the Lothian Research Ethics Committee (Appendix 2). Over a period of two months, 40 individuals with a diagnosis of Bipolar I or Bipolar II disorder were given the four questionnaires by their therapist (see: section 2.3; Appendices 4, 5, 6, 7) in a stamped addressed envelope and invited to return the completed questionnaires should they wish to participate in the study. It was emphasised that participation was entirely voluntary and in no way related to their ongoing contact with the service. Participants were asked to give their name and contact telephone number if they were happy to be interviewed in further detail about their experiences, but emphasised that there was no obligation to do so should they wish to return the questionnaire anonymously. It was also made clear that completed questionnaires would not be kept after the data was analysed. The assessment scales for each individual's last manic episode, administered as part of routine assessment by the bipolar service, were included for those participants who chose to give their names. There were no exclusion criteria for participation in the study.

An opportunistic sample were asked to participate in the study as part of the control group by completing the set of questionnaires in either paper format or as an electronic form via electronic mail. Participants were asked to give their name and a contact telephone number if they were happy to be interviewed in further detail about their experiences, but otherwise could return the questionnaires anonymously. There were no exclusion criteria for participation in the study.

2.5 Data handling and analysis

Analyses of the data were conducted using SPSS version 11.5.

3 Results

3.1 Demographics

44 questionnaires were returned by the control group. 18 individuals with bipolar disorder recruited from the bipolar service returned completed questionnaires. Complete data were available for 14 of the bipolar group. BLIP data for last episode of mania/hypomania were unavailable for four individuals. Several individuals from both groups did not complete all demographic fields, therefore some data, such as age or relationship status, are missing.

The bipolar group comprised 11 males and 7 females with a mean age of 41.2 years (standard deviation 10.1 years). Current relationship status was known for 10 of the group, half being in a relationship and half not. The demographics of the bipolar group are summarised in Table 1.

	N	Missing	Range (years)	Mean (years)	S.D. (yrs)
Male	11				
Female	7				
Currently in relationship	5	13			
Age	17	1	26-63	41.2	10.1
Time since episode of reciprocated love	6	12	3-13	8	4.3
Time since episode of unreciprocated love	6	12	0-19	7	8.4

Table 1 Bipolar group demographics

	N	Missing	Range (years)	Mean (years)	S.D. (yrs)
Male	16				
Female	24				
Currently in relationship	26	11			
Age	36	8	21-43	29	5.4
Time since episode of reciprocated love	30	14	0-20	4.6	4.8
Time since episode of unreciprocated love	28	16	1-25	7.5	5.9

Table 2 Control group demographics

The control group comprised 16 males and 24 females (4 unknown). 26 of the group were known to be in a current relationship and 7 were not. The mean age of the group was 36 years (standard deviation 5.4 years). The demographics of the control group are summarised in Table 2.

The bipolar group was significantly older than the control group ($t=4.7$, $df=20$. $p<0.01$).

Data from the MDF bipolar sample were used only in comparison of control subject's experience of being in love or infatuated with the state of mania or hypomania (section 3.2.1), therefore demographic information on this sample are not reported here. All other analyses were carried out using data from the bipolar sample recruited from the Royal Edinburgh Hospital Bipolar Service.

3.2 Comparing the states of love and mania between subjects

3.2.1 Analysis of BLIP data

For each BLIP questionnaire completed, a "total mania" score was computed by summing responses to those items in the BLIP pertaining to manic symptoms, and a "total depression" score computed in the same manner from those items pertaining to depressive symptoms. A "mixed state" score was computed by multiplying the total mania and total depression scores together. By definition, a mixed state requires the presence of both manic and depressive symptoms, therefore if either no manic or no depressive symptoms were reported the mixed state score would compute as zero.

Control subjects responses on the BLIP measure relating to their experience of being in love (reciprocated and unreciprocated) were compared item by item to bipolar subjects responses on the same measure in relation to their last episode of mania or hypomania. The total scores for mania items, depression items and the mixed state score were also compared. Independent samples t-tests were carried out between the groups to compare the means of these scores. Due to the large number of comparisons made alpha was set at 0.01. Where degrees of freedom are less than a whole number, this indicates that Levene's test for equality of variances has revealed unequal variances between the two means.

3.2.1.1 Comparison between reciprocated love and mania

Table 3 details the statistical comparisons between bipolar subjects' responses on BLIP mania items in relation to their last manic episode and control subjects' responses on the same items relating to an episode of reciprocated love. The mean scores of both groups on five items were *not* significantly different from each other. These items were "mood" (t=1.01, df=138.3, p=0.31), "self-esteem" (t=2.35, df=122.1, p=0.44), "weight change" (t=1.42, df=175, p=0.25), "anxiety" (t=2.12, df=133.2, p=0.04) and "eating habits" (t=2.28, df=124.9, p=0.42). Given that elevation of mood is the key diagnostic criterion of a manic episode, it is of particular interest that no difference was found between the bipolar subjects' rating of mood in mania to control subjects' rating of mood in love; it is perhaps worthy of note that the control group's mean score on this item was in fact higher than the bipolar group, although not significantly so.

Also of interest is the observation that there is a significant difference between the two groups mean scores on the BLIP item "sexual interest". The control group scored significantly higher on average than the bipolar group on this item (t=4.13, df=79.2, p=0.01).

With respect to the BLIP depression items, no significant difference between the two groups was found on any item, indicating similarity between the depressive features of mania and of being in love (see Table 4).

Two items show similarity between bipolar and control subjects when computed as a mixed state: "mood" (t=0.83, df=171.5, p=0.41) and "sexual interest" (t=0.08, df=97, p=0.28) (Table 5).

The bipolar group had significantly higher total scores of mania items (t=7.11, df=169.4, p<0.01), depression items (t=4.80, df=168.3, p<0.01) and when computed as a mixed state (t=5.81, df=148.1, p<0.01). However, Figure 2, Figure 3 and Figure 4 illustrate the profile of the two group's mean scores on BLIP mania items (Figure 2), depression items (Figure 3) and the mixed state profile (Figure 4). Although statistically different in numerical terms, the profiles are strikingly similar.

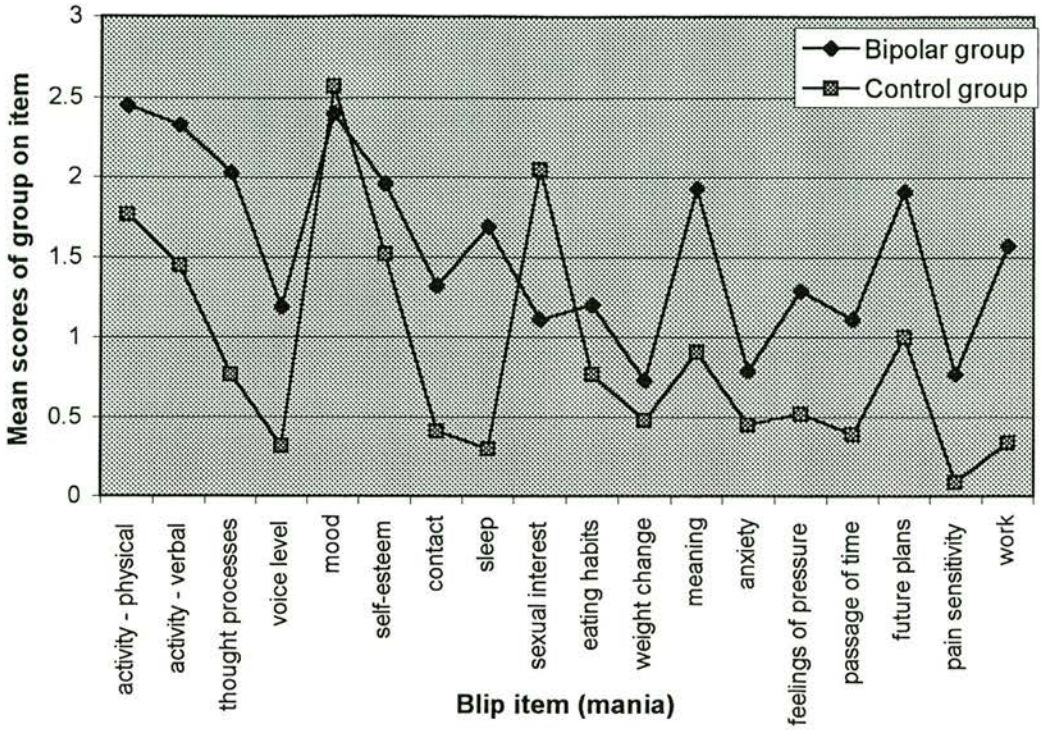

Figure 2 Mean scores of control subjects on BLIP mania items for an episode of reciprocated love compared with bipolar subjects' mean scores on BLIP mania items for manic/hypomanic episode

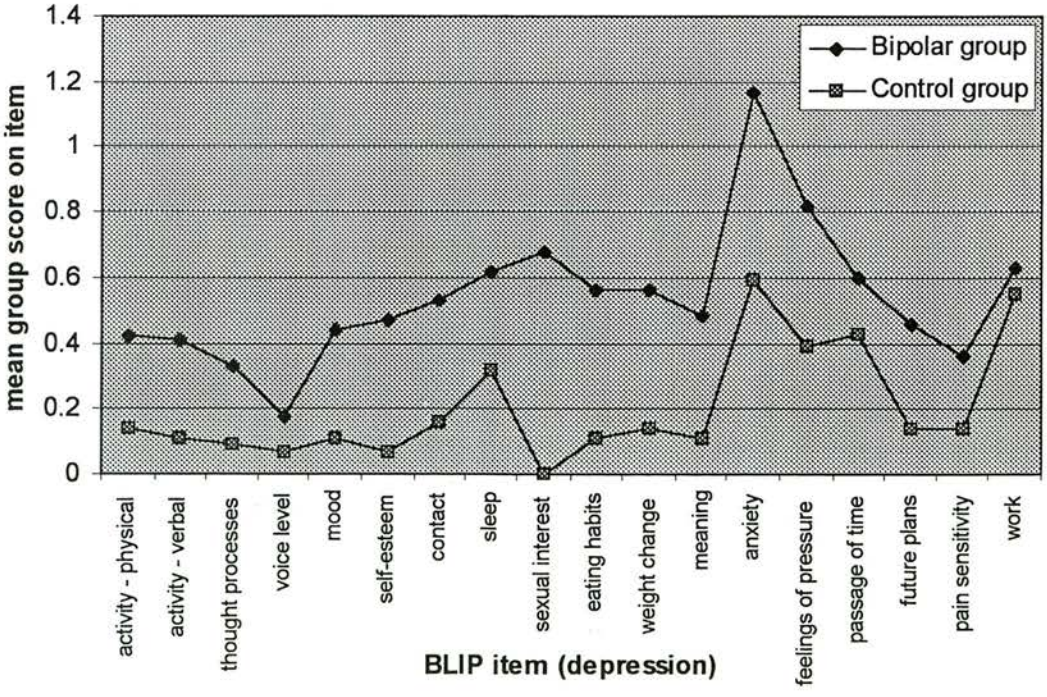

Figure 3 Mean scores of control subjects on BLIP depression items for an episode of reciprocated love compared with bipolar subjects' scores for manic/hypomanic episode

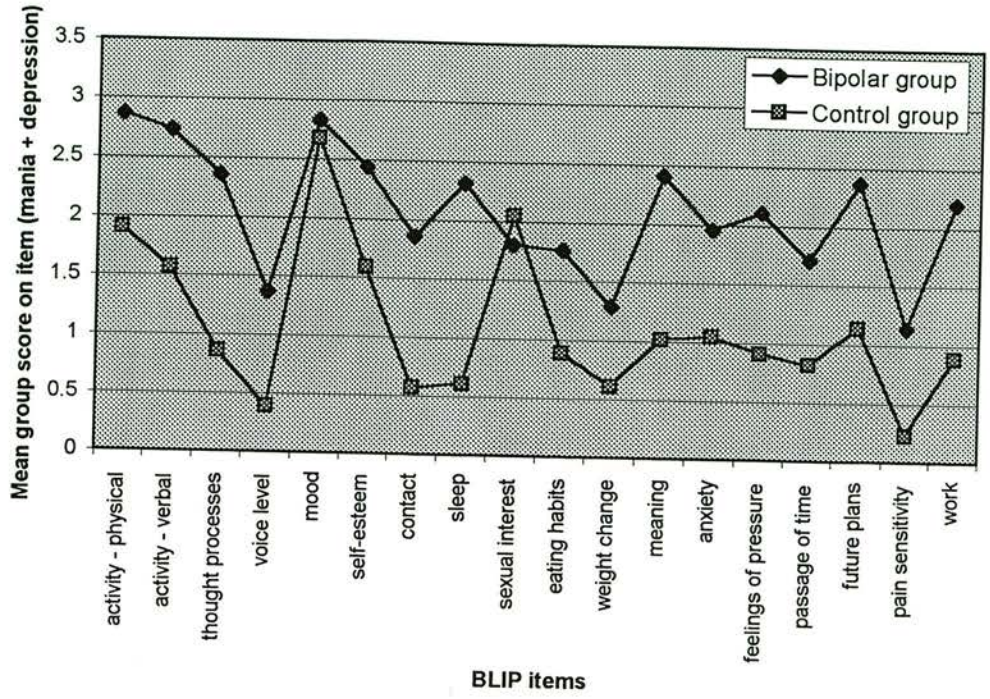

Figure 4 Mixed state scores of bipolar subjects in mania and control subjects in reciprocated love (BLIP items mania + depression)

In order to establish whether the profiles are statistically similar, Spearman's Rho correlation was calculated between the rank order of the items. All three profiles are significantly correlated (mania items: r_s=0.56, df=16, $p<0.01$; depression items: r_s=0.57, df=16, $p<0.01$; mixed state items: r_s=0.72, df=16, $p<0.01$). This confirms that although the bipolar group had a higher mean score on most items, the rank order of means is significantly similar.

Item	Mean CONTROL BIPOLAR	Standard deviation CONTROL BIPOLAR	t – value	Degrees of freedom	Significance (2-tailed)
Activity - physical	1.77 2.45	1.03 1.36	3.48	96.1	p <0.01
Activity - verbal	1.45 2.33	1.13 1.38	3.82	175	p <0.01
Thought processes	0.77 2.03	0.89 1.35	7.07	113.1	p <0.01
Voice level	0.32 1.19	0.71 1.27	5.66	134.3	p <0.01
Mood	2.57 2.40	0.76 1.41	1.01	138.3	p =0.31
Self-esteem	1.52 1.96	0.90 1.48	2.35	122.1	p =0.02
Contact	0.41 1.32	0.62 1.22	6.48	144.9	p <0.01
Sleep	0.30 1.69	0.70 1.66	7.83	165.1	p <0.01
Sexual interest	2.05 1.11	1.22 1.32	0.13	175	p <0.01
Eating habits	0.77 1.20	0.89 1.49	2.28	124.9	p =0.02
Weight change	0.48 0.73	0.79 1.09	1.42	175	p =0.16
Meaning	0.91 1.93	1.03 1.63	4.87	117.4	p <0.01
Anxiety	0.45 0.79	0.73 1.30	2.12	133.2	p =0.04
Feelings of pressure	0.52 1.29	1.07 1.48	3.74	101.8	p <0.01
Passage of time	0.39 1.11	0.78 1.40	4.24	133.2	p <0.01
Future plans	1.00 1.91	1.26 1.57	3.90	91.1	p <0.01
Pain sensitivity	0.09 0.77	0.36 1.25	5.62	173.2	p <0.01
Work	0.34 1.57	0.57 1.63	7.45	174.5	p <0.01
Total mania score	16.11 27.79	6.20 15.58	7.11	169.4	p <0.01

Table 3 Mania items endorsed by control subjects in reciprocated love compared with mania items endorsed by bipolar subjects in mania.

Item	Mean CONTROL BIPOLAR	S.D CONTROL BIPOLAR	t – value	Degrees of freedom	Significance (2-tailed)
Activity - physical	0.14 0.42	0.46 1.16	2.33	169.2	p =0.02
Activity - verbal	0.11 0.41	0.44 1.13	2.53	170.3	p <0.01
Thought processes	0.09 0.33	0.29 1.03	2.42	172.6	p =0.02
Voice level	0.07 0.18	0.26 0.72	1.54	174.1	p =0.13
Mood	0.11 0.44	0.39 1.16	2.78	174.9	p <0.01
Self-esteem	0.07 0.47	0.26 1.18	3.70	161.8	p <0.01
Contact	0.16 0.53	0.43 1.17	3.13	173.2	p <0.01
Sleep	0.32 0.62	0.74 1.17	2.03	116.9	p =0.04
Sexual interest	0.00 0.68	0.00 1.33	5.92	132	p <0.01
Eating habits	0.11 0.56	0.39 1.08	4.08	174	p <0.01
Weight change	0.14 0.56	0.41 1.16	3.63	174.3	p <0.01
Meaning	0.11 0.48	0.39 1.18	3.13	175	p <0.01
Anxiety	0.59 1.17	1.04 1.34	2.98	93.8	p <0.01
Feelings of pressure	0.39 0.82	0.62 1.34	2.91	157.2	p <0.01
Passage of time	0.43 0.60	0.63 1.22	1.20	144.6	p =0.23
Future plans	0.14 0.46	0.41 1.18	2.70	174.6	p <0.01
Pain sensitivity	0.14 0.36	0.41 0.93	2.21	162	p =0.03
Work	0.55 0.63	0.66 1.33	0.57	169.2	p =0.02
Total depression score	3.66 9.75	3.37 13.43	4.80	168.3	p <0.01

Table 4 Depression items endorsed by control subjects in reciprocated love compared with depression items endorsed by bipolar subjects in mania.

Item	Mean CONTROL BIPOLAR	Standard deviation CONTROL BIPOLAR	t – value	Degrees of freedom	Significance (2-tailed)
Activity - physical	1.91 2.87	1.07 1.64	3.65	175	p <0.01
Activity - verbal	1.57 2.74	1.13 1.56	4.63	175	p <0.01
Thought processes	0.86 2.36	0.88 1.55	7.93	132	p <0.01
Voice level	0.39 1.37	0.75 1.50	5.70	146.8	p <0.01
Mood	2.68 2.83	0.67 1.76	0.83	171.5	p =0.41
Self-esteem	1.59 2.44	0.82 1.70	4.40	152.8	p <0.01
Contact	0.57 1.86	0.73 1.40	7.88	142.8	p <0.01
Sleep	0.61 2.32	0.92 1.82	8.11	146	p <0.01
Sexual interest	2.05 1.80	1.22 1.62	0.08	97	p =0.28
Eating habits	0.89 1.76	0.87 1.49	4.75	127.8	p <0.01
Weight change	0.61 1.29	0.81 1.37	3.98	125.6	p <0.01
Meaning	1.02 2.41	1.02 1.67	6.58	121.5	p <0.01
Anxiety	1.05 1.96	1.14 1.47	4.29	94	p <0.01
Feelings of pressure	0.91 2.11	1.07 1.51	5.78	103.3	p <0.01
Passage of time	0.82 1.71	0.92 1.72	4.36	138.9	p <0.01
Future plans	1.14 2.37	1.27 1.61	5.20	92.6	p <0.01
Pain sensitivity	0.23 1.14	0.52 1.47	6.06	174.1	p <0.01
Work	0.89 2.20	0.69 1.67	7.38	167.1	p <0.01
Total mixed state score	61.59 270.81	59.62 402.14	5.81	148.1	p <0.01

Table 5 Mixed state scores (mania + depression) of control subjects in reciprocated love compared with mixed state scores of bipolar subjects in mania.

3.2.1.2 Comparison between unreciprocated love and mania

Table 6 details the statistical comparisons between bipolar subjects' responses on BLIP mania items in relation to their last manic episode and control subjects' responses on the same items relating to an episode of unreciprocated love. The mean scores of both groups were not significantly different for "weight change" ($t=2.16$, $df=105.8$, $p=0.03$), "anxiety" ($t=0.39$, $df=113.1$, $p=0.70$) and "passage of time" ($t=1.97$, $df=112.5$, $p=0.05$).

With respect to responses on the BLIP depression scale (Table 7) the control group reported significantly lower mood ($t=5.42$, $df=175$, $p<0.01$) and self esteem ($t=3.85$, $df=175$, $p<0.01$) in unreciprocated love than the bipolar group in mania. The bipolar group experienced significantly higher levels of anxiety than the control group ($t=10.10$, $df=132$, $p<0.01$) and difference in perception of time ($t=4.47$, $df=166.3$, $p<0.01$). The two groups also showed significant differences in eating habits ($t=4.05$, $df=174.9$, $p<0.01$) and weight change ($t=3.46$, $df=172.9$, $p<0.01$). The two groups were not significantly different on all other items on the depression scale.

The bipolar group in mania reported significantly higher mixed state scores on all items than the control group in unreciprocated love (Table 8).

The bipolar group reported significantly higher total mania scores ($t=12.32$, $df=166.9$, $p<0.01$) and mixed state scores ($t=4.55$, $df=174.2$, $p<0.01$) in mania than the controls in unreciprocated love. The total depression scores were not significantly different between the two conditions ($t=0.34$, $df=139.9$, $p=0.73$).

Figure 5 shows the profile of mixed state scores of bipolar subjects in mania and of control subjects in unreciprocated love. Spearman's Rho correlation was calculated between the two profiles and was found to be significant ($r_s=0.66$, $df=16$, $p<0.01$).

No correlation was found between the rank order of mania scores ($r_s=-0.17$, n.s.) or depression scores ($r_s=-0.11$, n.s.) in unreciprocated love and manic episode (profile graphs not shown). This is in contrast to the significant correlation observed between the rank order of mania and depression scores in reciprocated love and mania.

Item	Mean CONTROL BIPOLAR	Standard deviation CONTROL BIPOLAR	t – value	Degrees of freedom	Significance (p value)
Activity – physical	0.64 2.45	1.06 1.36	9.00	94.6	p <0.01
Activity – verbal	0.36 2.33	0.87 1.38	10.94	118.7	p <0.01
Thought processes	0.34 2.03	0.81 1.35	9.84	126.1	p <0.01
Voice level	0.20 1.19	0.67 1.27	6.52	142.4	p <0.01
Mood	0.36 2.40	0.84 1.41	11.40	126.6	p <0.01
Self-esteem	0.05 1.96	0.21 1.48	14.31	146.8	p <0.01
Contact	0.32 1.32	0.67 1.22	6.72	134.2	p <0.01
Sleep	0.39 1.69	0.97 1.66	6.32	127.9	p <0.01
Sexual interest	0.59 1.11	0.95 1.32	2.89	102.2	p <0.01
Eating habits	0.66 1.20	0.96 1.49	2.76	114.2	p <0.01
Weight change	0.41 0.73	0.76 1.09	2.16	105.8	p =0.03
Meaning	0.30 1.93	0.70 1.63	9.13	164	p <0.01
Anxiety	0.86 0.79	0.85 1.30	0.39	113.1	p =0.70
Feelings of pressure	0.20 1.29	0.70 1.48	6.42	153.9	p <0.01
Passage of time	0.75 1.11	0.92 1.40	1.97	112.5	p <0.05
Future plans	0.30 1.91	0.85 1.57	8.62	137.8	p <0.01
Pain sensitivity	0.11 0.77	0.39 1.25	5.36	174.5	p <0.01
Work	0.07 1.57	0.26 1.63	10.11	149.7	p <0.01

Table 6 Mania items endorsed by control subjects in unreciprocated love compared with mania items endorsed by bipolar subjects in mania.

Item	Mean CONTROL BIPOLAR	Standard deviation CONTROL BIPOLAR	t – value	Degrees of freedom	Significance (p value)
Activity – physical	0.70 0.42	1.05 1.16	1.40	175	p =0.16
Activity – verbal	0.64 0.41	1.01 1.13	1.12	175	p =0.26
Thought processes	0.32 0.33	0.67 1.03	0.08	175	p =0.94
Voice level	0.23 0.18	0.42 0.72	0.41	175	p =0.68
Mood	1.55 0.44	1.15 1.16	5.42	175	p <0.01
Self-esteem	1.23 0.47	0.77 1.18	3.85	175	p <0.01
Contact	0.61 0.53	0.90 1.17	0.38	175	p =0.71
Sleep	0.48 0.62	0.82 1.17	0.77	175	p =0.44
Sexual interest	0.50 0.68	1.02 1.33	0.96	95.1	p =0.34
Eating habits	0.14 0.56	0.35 1.08	4.05	174.9	p <0.01
Weight change	0.16 0.56	0.43 1.16	3.46	172.9	p <0.01
Meaning	0.52 0.48	0.76 1.18	0.10	175	p =0.92
Anxiety	0.00 1.17	0.00 1.34	10.10	132	p <0.01
Feelings of pressure	0.66 0.82	0.94 1.34	0.92	105.5	p =0.36
Passage of time	0.09 0.60	0.29 1.22	4.47	166.3	p <0.01
Future plans	0.41 0.46	0.79 1.18	0.34	175	p =0.74
Pain sensitivity	0.18 0.36	0.50 0.93	1.63	140.1	p =0.11
Work	0.91 0.63	0.80 1.33	1.66	123.4	p =0.10

Table 7 Depression items endorsed by control subjects in unreciprocated love compared with mania items endorsed by bipolar subjects in mania.

Item	Mean CONTROL BIPOLAR	Standard deviation CONTROL BIPOLAR	t – value	Degrees of freedom	Significance (2-tailed)
Activity – physical	1.34 2.87	1.14 1.64	5.68	175	p <0.01
Activity – verbal	1.00 2.74	1.16 1.56	7.78	98.2	p <0.01
Thought processes	0.66 2.36	0.94 1.55	8.56	124.3	p <0.01
Voice level	0.43 1.37	0.76 1.50	5.36	146.2	p <0.01
Mood	1.91 2.83	1.31 1.76	3.18	175	p <0.01
Self-esteem	1.27 2.44	0.76 1.70	6.23	160.6	p <0.01
Contact	0.93 1.86	0.95 1.40	4.85	108.5	p <0.01
Sleep	0.86 2.32	1.19 1.82	6.04	113.1	p <0.01
Sexual interest	1.09 1.80	1.16 1.62	3.19	102.1	p <0.01
Eating habits	0.80 1.76	0.93 1.49	5.11	118.4	p <0.01
Weight change	0.57 1.29	0.79 1.37	4.36	129	p <0.01
Meaning	0.82 2.41	0.90 1.67	8.05	138.9	p <0.01
Anxiety	0.86 1.96	0.85 1.47	6.13	128	p <0.01
Feelings of pressure	0.86 2.11	1.05 1.51	6.03	105.5	p <0.01
Passage of time	0.84 1.71	0.91 1.72	4.31	139.6	p <0.01
Future plans	0.70 2.37	1.05 1.61	7.99	113	p <0.01
Pain sensitivity	0.30 1.14	0.59 1.47	5.39	168.5	p <0.01
Work	0.98 2.20	0.76 1.67	6.51	158.1	p <0.01

Table 8 Mixed state scores (mania + depression) of control subjects in unreciprocated love compared with mixed state scores of bipolar subjects in mania.

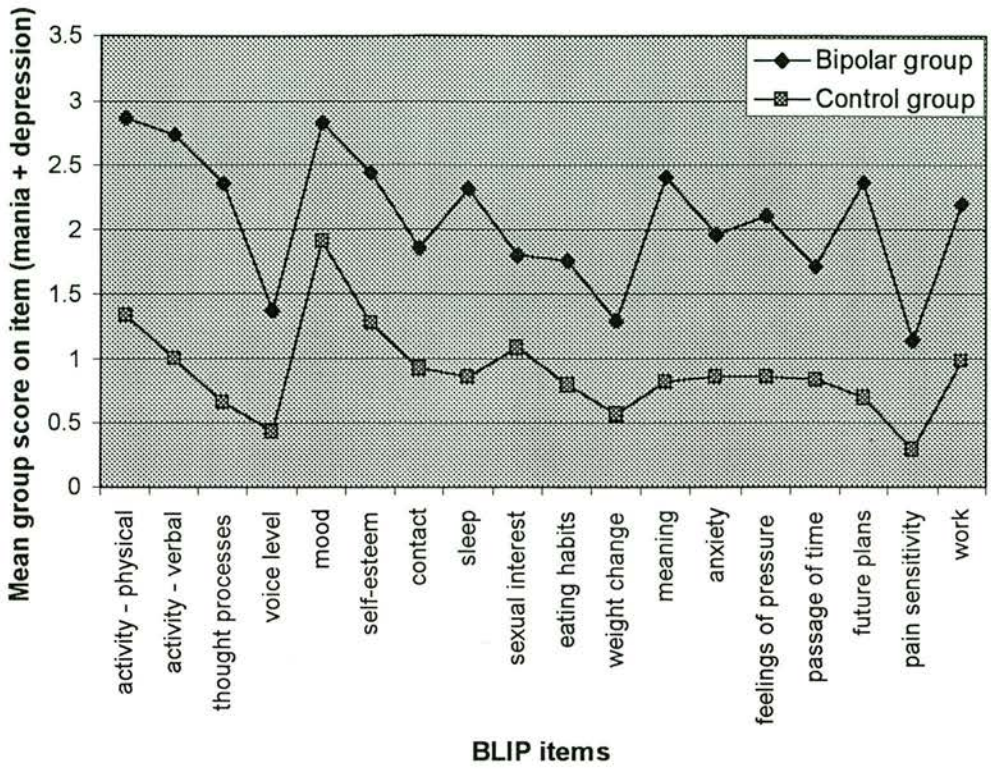

Figure 5 Mixed state profiles of control subjects in unreciprocated love and bipolar subjects in mania (BLIP items mania + depression)

3.2.2 Summary scores

The distributions of the BLIP summary scores (total mania, total depression and mixed state) are shown in Table 9 (control group) and Table 10 (bipolar group).

BLIP: reciprocated love	N	Range	Mean (s.d.)	Skewness (s.e.)	Kurtosis (s.e.)
Mania total	44	2-29	16.1 (6.2)	-0.01 (0.36)	0.15 (0.70)
Depression total	44	0-14	3.7 (3.4)	1.23 (0.36)	1.55 (0.70)
Mixed state score	44	0-14	61.6 (59.6)	1.27 (0.36)	1.80 (0.70)
BLIP: unreciprocated love					
Mania total	44	0-38	6.9 (6.5)	2.89 (0.36)	11.67 (0.70)
Depression total	44	0-30	9.3 (7.2)	0.92 (0.36)	0.31 (0.70)
Mixed state score	44	0-798	84.4 (142.6)	3.50 (0.36)	14.66 (0.70)

Table 9 Distribution and skewness/kurtosis of summary scores of measures for the control group.

BLIP: reciprocated love	N	Range	Mean (s.d.)	Skewness (s.e.)	Kurtosis (s.e.)
Mania total	17	6-44	18.0 (11.0)	1.56 (0.55)	1.93 (1.06)
Depression total	17	0-16	3.9 (4.2)	1.74 (0.55)	3.40 (1.06)
Mixed state score	17	0-336	90.1 (111.9)	1.23 (0.55)	0.12 (1.06)
BLIP: unreciprocated love					
Mania total	17	0-36	7.2 (8.8)	2.55 (0.55)	7.26 (1.06)
Depression total	17	1-57	17.4 (17.1)	1.37 (0.55)	1.13 (1.06)
Mixed state score	17	0-612	136 (191)	1.56 (0.55)	1.31 (1.06)
BLIP: last episode mania					
Mania total	14	6-41	24.6 (9.8)	-0.03 (0.60)	0.14 (1.15)
Depression total	14	1-40	10.9 (11.1)	1.81 (0.60)	3.01 (1.15)
Mixed state score	14	41-492	202.6 (143.6)	0.70 (0.60)	-0.54 (1.15)

Table 10 Distribution and skewness/kurtosis of summary scores of measures for the bipolar group

Variables which had high values of skew and kurtosis were examined, however transformation (LN[x+1]) made no difference to the outcome of analysis therefore raw scores are presented.

Significantly higher total mania scores were reported in reciprocated love than unreciprocated love by the control group ($t=7.72$, $df=43$, $p<0.01$) and by the bipolar group ($t=4.90$, $df=15$, $p<0.01$).

The control group reported significantly higher total depression scores in unreciprocated love than in reciprocated love ($t=5.57$, $df=43$, $p<0.01$), as did the bipolar group ($t=3.44$, $df=15$, $p<0.01$).

In both groups there was no significant difference between total mixed state scores in reciprocated or unreciprocated love.

3.3 Comparing the states of love and mania within subjects

3.3.1 Comparison of reciprocated love and mania

In order to determine how an individual's experience of mania compares to their experience of being in love, data from the BLIP with respect to episodes of reciprocated and unreciprocated love completed by the bipolar group (n=18) were compared to their BLIP scores relating to their last episode of mania or hypomania.

Figure 6, Figure 7, and Figure 8 illustrate the bipolar group's profile of responses on BLIP mania items (Figure 6), depression items (Figure 7) and mixed state scores (Figure 8) that relate to their last episode of mania and a recalled episode of reciprocated love.

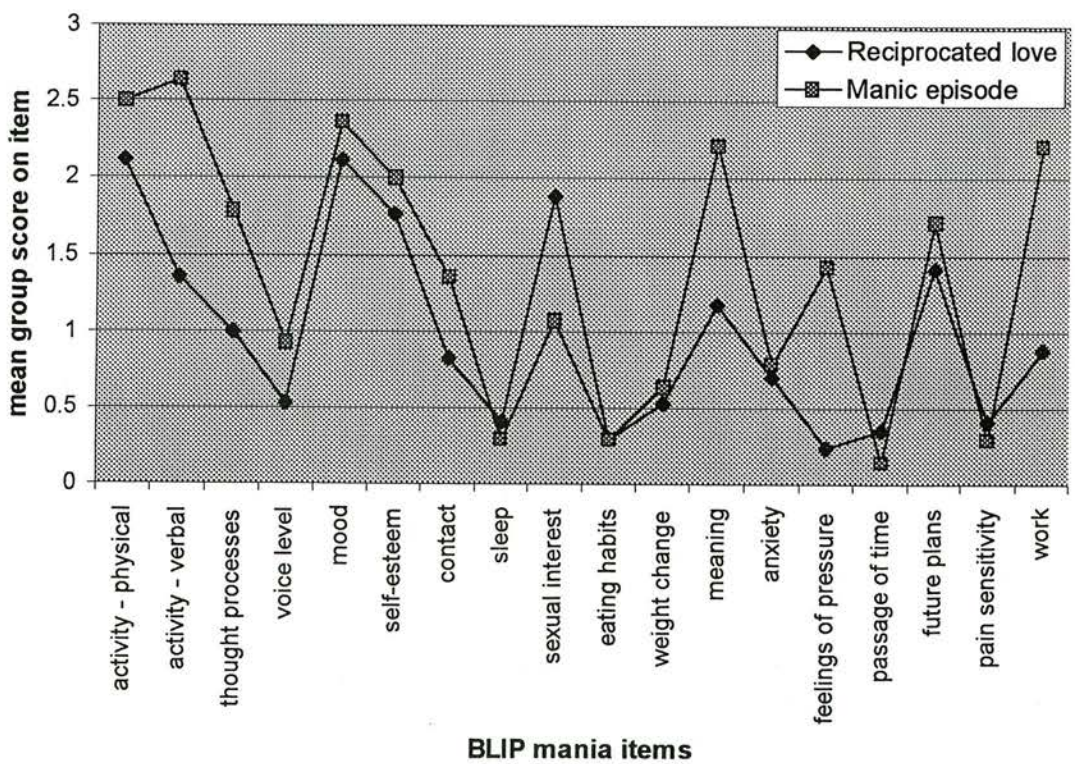

Figure 6 Profile of mean scores of the bipolar group on BLIP mania items for manic episode and reciprocated love.

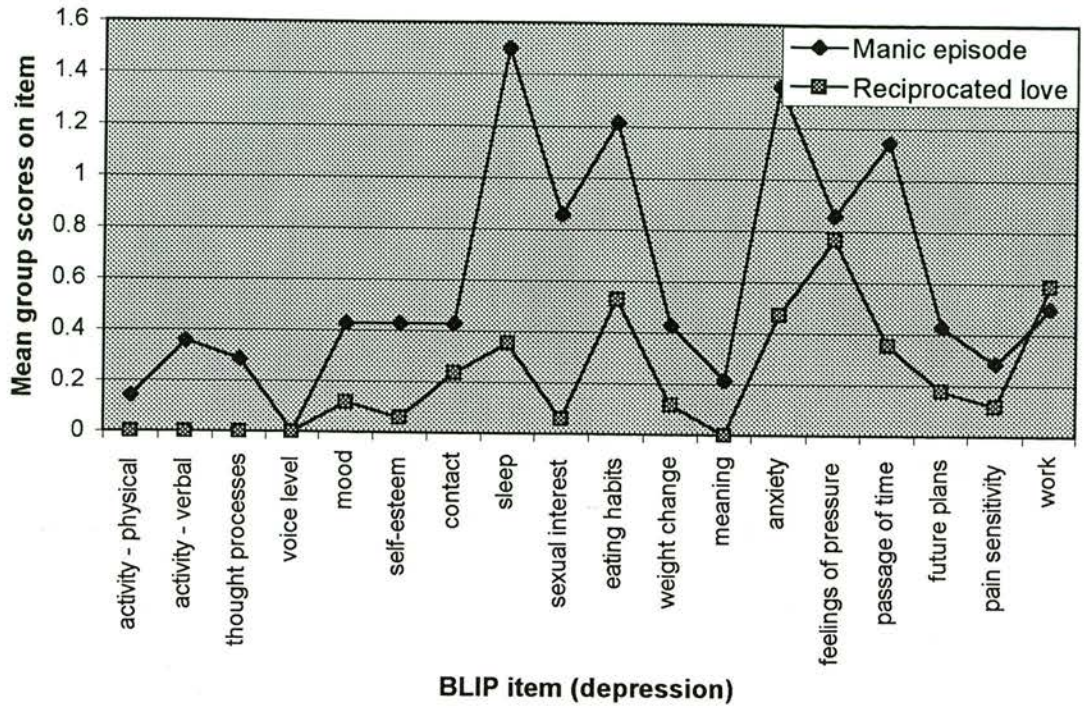

Figure 7 Profile of mean scores of the bipolar group on BLIP depression items for manic episode and reciprocated love

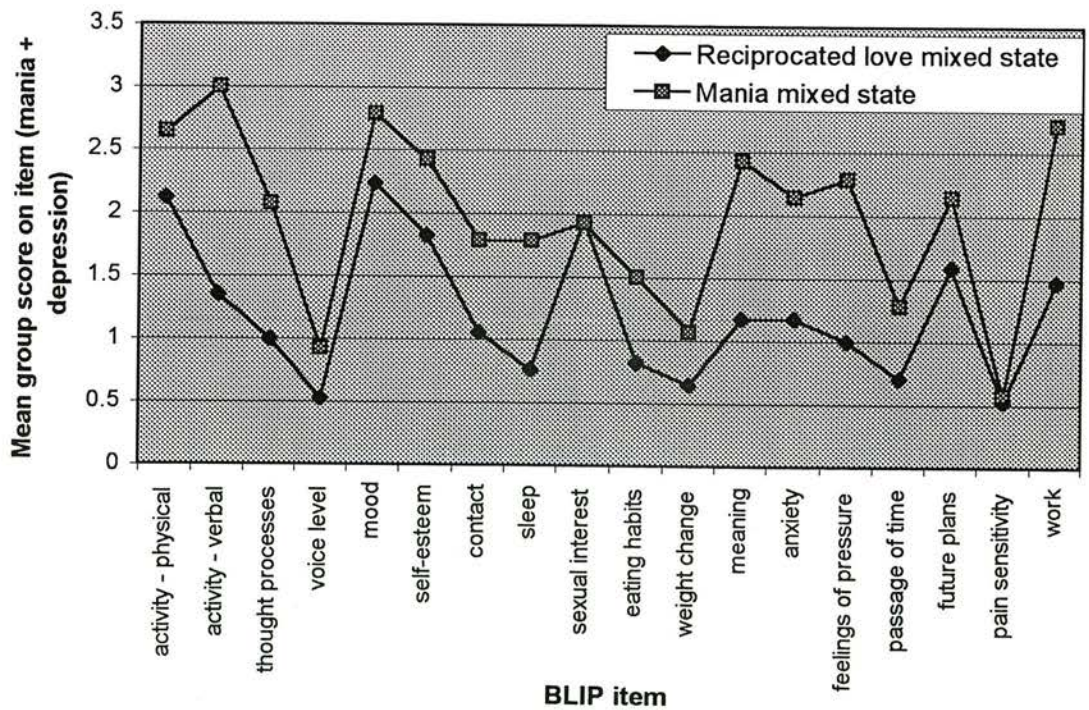

Figure 8 Profile of mean mixed state scores of bipolar subjects on combined BLIP items (mania + depression) in reciprocated love and manic episode

Spearman's Rho correlations were calculated for the rank order of the items presented in Figure 6, Figure 7 and Figure 8 in order to compare the statistical similarity of the profiles.

The correlation between rank orders of the mania items was highly significant (r_s=0.76, df=16, p<0.01), as it was between the depression items, (r_s=0.79, df=16, p<0.01) and mixed state items (r_s=0.81, df=16, p<0.01).

Paired t-tests were carried out between the mean scores of bipolar subjects on BLIP mania items relating to a manic episode and an episode of reciprocated love (Table 11).

Only two items were found to be significantly different in the experiences of mania and reciprocated love: social contact (t=3.81, df=12, p=0.01) and feelings of pressure (t=3.01, df12=, p=0.01). Skew and kurtosis of some variables were examined (see Appendix 8). For those variables which were highly skewed, natural logarithm transformations were carried out (LN[x+1] was calculated where x=variable in order to obviate the problem that the range of values included zero which has no natural logarithm). The transformed variables, however, made no difference to the outcome of the comparisons, therefore raw scores were used.

Only the item "passage of time" was found to be significantly different between depression scores in mania and reciprocated love (t=2.94, df=12, p=0.01) (Table 12).

Paired t-tests were carried out between the mean mixed state scores (BLIP mania + depression items) of bipolar subjects relating to a manic episode and an episode of reciprocated love (Table 13). Six items were found to be significantly different: anxiety (t=2.94, df=12, p<0.01); sleep (t=3.40, df=12, p<0.01); feelings of pressure (t=3.68, df=12, p<0.001); contact (t=4.42, df=12, p<0.001); thought processes (t=4.16, df=12, p<0.001) and verbal activity (t=5.02, df=12, p<0.001).

	Paired Differences		t	df	Significance (2-tailed)
	Mean	Std. Deviation			
Activity - physical	0.62	1.61	1.38	12	p=0.19
Activity - verbal	1.54	1.98	2.80	12	p=0.02
Thought processes	1.15	1.57	2.65	12	p=0.02
Voice level	0.85	1.28	2.38	12	p=0.04
Mood	0.15	1.52	0.37	12	p=0.72
Self-esteem	0.23	1.17	0.71	12	p=0.49
Contact	0.85	0.80	3.81	12	p<0.01
Sleep	-1.00	1.35	2.66	12	p=0.02
Sexual interest	1.00	1.68	2.14	12	p=0.05
Eating habits	7.69E-02	0.64	0.43	12	p=0.67
Weight change	7.69E-02	1.12	0.25	12	p=0.81
Meaning	0.92	1.61	2.07	12	p=0.06
Anxiety	-7.69E-02	1.55	0.18	12	p=0.86
Feelings of pressure	1.38	1.66	3.01	12	p<0.01
Passage of time	-0.23	0.73	-1.15	12	p=0.27
Future plans	0.62	1.94	1.15	12	p=0.28
Pain sensitivity	0.23	0.93	0.90	12	p=0.39
Work	1.31	2.02	2.34	12	p=0.04

Table 11 Results of paired t-tests between mean scores of bipolar subjects on BLIP mania items relating to a manic episode and an episode of reciprocated love

	Paired Differences		t	df	Significance (2-tailed)
	Mean	Std. Deviation			
Activity - physical	0.15	0.56	1.00	12	p=0.34
Activity - verbal	0.38	0.96	1.44	12	p=0.18
Thought processes	0.31	1.11	1.00	12	p=0.34
Voice level	0.00				
Mood	0.31	1.11	1.00	12	p=0.34
Self-esteem	0.38	0.96	1.44	12	p=0.18
Contact	0.15	0.69	0.81	12	p=0.44
Sleep	0.85	1.14	2.67	12	p=0.02
Sexual interest	0.54	1.05	1.85	12	p=0.09
Eating habits	0.62	1.04	2.13	12	p=0.05
Weight change	0.31	0.85	1.30	12	p=0.22
Meaning	0.23	0.83	1.00	12	p=0.34
Anxiety	1.15	1.34	3.09	12	p=0.09
Feelings of pressure	0.15	1.52	0.37	12	p=0.72
Passage of time	1.00	1.22	2.94	12	p<0.01
Future plans	-7.69E-02	0.76	0.37	12	p=0.72
Pain sensitivity	0.15	0.80	0.69	12	p=0.50
Work	1.31	2.02	0.18	12	p=0.86

Table 12 Results of paired t-tests between mean scores of bipolar subjects on BLIP depression items relating to a manic episode and an episode of reciprocated love

	Paired Differences		t	df	Significance (2-tailed)
	Mean	Std. Deviation			
Activity - physical	0.77	1.30	2.13	12	p=0.05
Activity - verbal	1.92	1.38	5.02	12	p<0.001
Thought processes	1.46	1.27	4.16	12	p<0.001
Voice level	0.85	1.28	2.38	12	p=0.04
Mood	0.46	1.45	1.15	12	p=0.27
Self-esteem	0.62	0.870	2.55	12	p=0.03
Contact	1.00	0.82	4.42	12	p<0.001
Sleep	0.85	0.90	3.40	12	p<0.01
Sexual interest	0.08	2.06	0.14	12	p=0.90
Eating habits	0.69	1.18	2.11	12	p=0.06
Weight change	0.38	0.65	2.13	12	p=0.05
Meaning	1.15	1.68	2.48	12	p=0.03
Anxiety	1.08	1.32	2.94	12	p<0.01
Feelings of pressure	1.54	1.51	3.68	12	p<0.001
Passage of time	0.77	1.30	2.13	12	p=0.05
Future plans	0.54	1.71	1.13	12	p=0.28
Pain sensitivity	0.38	1.12	1.24	12	p=0.24
Work	1.23	1.88	2.36	12	p=0.36

Table 13 Results of paired t-tests between mean mixed state (BLIP mania + depression items) scores of bipolar subjects relating to a manic episode and an episode of reciprocated love

3.3.2 Comparison of unreciprocated love and mania

The profiles of mixed state scores in mania and in unreciprocated love (Figure 9) were observed to bear striking similarity to each other, more so than the profiles for mania and depression items in mania and unreciprocated love (not shown).

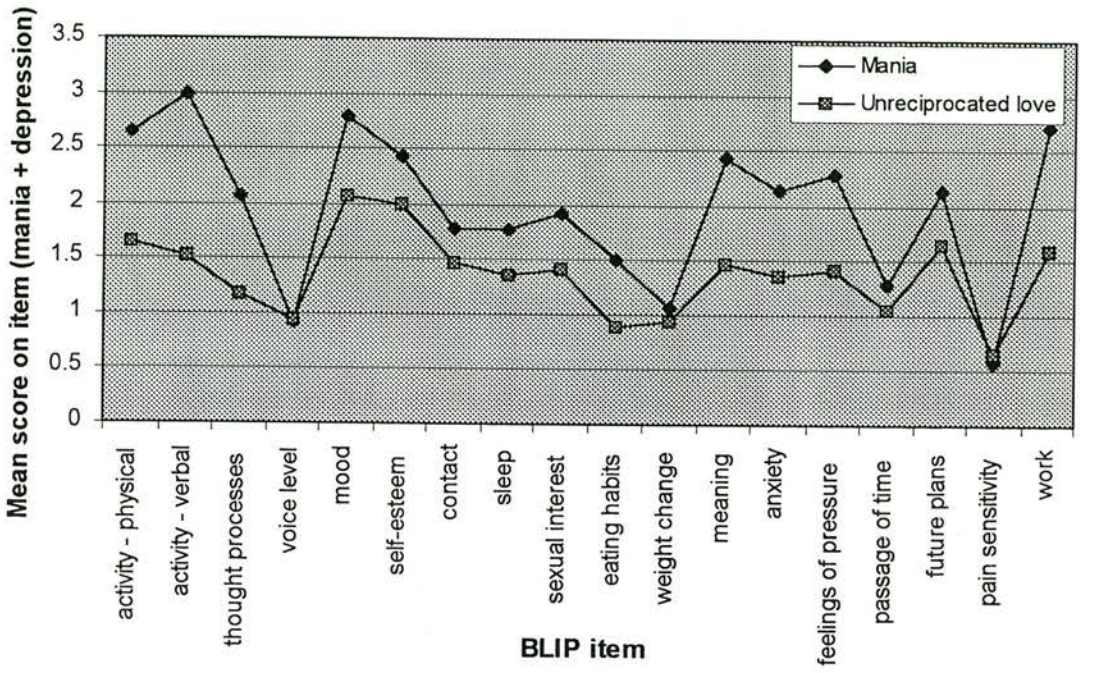

Figure 9 Profile of bipolar subjects' mixed state scores in mania and unreciprocated love

Spearman's Rho correlation was calculated for the rank order of items and was found to be highly significant (r_s=0.98, df=16, $p<0.01$). No correlation was found between the rank order of mania items (r_s=0.08, n.s.) or depression items (r_s=-0.16, n.s.).

Paired t-tests were carried out between the mean scores of bipolar subjects on BLIP mania items (Table 14), depression items (Table 15) and mixed state items (Table 16) relating to a manic episode and an episode of unreciprocated love.

	Paired Differences		t	df	Significance (2-tailed)
	Mean	Std. Deviation			
Activity – physical	1.85	1.28	5.20	12	p<0.001
Activity – verbal	2.31	1.32	6.33	12	p<0.001
Thought processes	1.69	1.25	4.88	12	p<0.001
Voice level	0.62	0.77	2.89	12	p<0.01
Mood	2.15	1.46	5.31	12	p<0.001
Self-esteem	1.77	1.30	4.90	12	p<0.001
Contact	1.23	1.09	4.06	12	p<0.001
Sleep	0.15	0.56	1.00	12	p=0.34
Sexual interest	0.38	1.98	0.70	12	p=0.50
Eating habits	0.15	1.28	0.43	12	p=0.67
Weight change	0.62	1.19	1.86	12	p=0.09
Meaning	1.92	1.50	4.63	12	p<0.001
Anxiety	-0.15	1.14	0.49	12	p=0.64
Feelings of pressure	0.92	1.71	1.95	12	p=0.08
Passage of time	-0.62	0.96	2.31	12	p=0.04
Future plans	1.54	1.39	3.99	12	p<0.01
Pain Sensitivity	0.31	0.86	1.30	12	p=0.22
Work	1.31	2.02	2.34	12	p=0.04

Table 14 Results of paired t-tests between mean scores of bipolar subjects on BLIP mania items relating to a manic episode and an episode of unreciprocated love

	Paired Differences		t	df	Significance (2-tailed)
	Mean	Std. Deviation			
Activity – physical	0.77	0.07	3.83	12	p<0.01
Activity – verbal	0.77	1.30	2.13	12	p=0.05
Thought processes	0.62	1.81	1.23	12	p=0.24
Voice level	0.54	1.13	1.72	12	p=0.11
Mood	1.15	1.35	3.09	12	p<0.01
Self-esteem	1.00	1.00	3.61	12	p=0.004
Contact	0.62	0.96	2.31	12	p=0.04
Sleep	0.69	1.32	1.90	12	p=0.08
Sexual interest	0.38	1.19	1.16	12	p=0.27
Eating habits	0.62	1.33	1.67	12	p=0.12
Weight change	0.31	0.75	1.48	12	p=0.17
Meaning	0.92	1.26	2.65	12	p=0.02
Anxiety	1.00	2.00	1.80	12	p=0.10
Feelings of pressure	0.08	1.89	0.15	12	p=0.89
Passage of time	0.92	1.26	2.65	12	p=0.02
Future plans	0.92	1.26	2.65	12	p=0.02
Pain Sensitivity	0.15	1.21	0.46	12	p=0.66
Work	0.69	1.18	2.11	12	p=0.06

Table 15 Results of paired t-tests between mean scores of bipolar subjects on BLIP depression items relating to a manic episode and an episode of unreciprocated love

	Paired Differences		t	df	Significance (2-tailed)
	Mean	Std. Deviation			
Activity – physical	1.08	1.32	2.94	12	p<0.01
Activity – verbal	1.54	1.81	3.07	12	p<0.01
Thought processes	1.08	2.10	1.85	12	p=0.09
Voice level	0.08	1.50	0.19	12	p=0.86
Mood	1.00	1.29	2.79	12	p=0.02
Self-esteem	0.77	1.09	2.54	12	p=0.03
Contact	0.62	1.19	1.86	12	p=0.09
Sleep	0.85	1.14	2.67	12	p=0.02
Sexual interest	0.77	1.59	1.75	12	p=0.11
Eating habits	0.77	1.24	2.25	12	p=0.04
Weight change	0.31	1.49	0.74	12	p=0.47
Meaning	1.00	1.29	2.79	12	p=0.02
Anxiety	0.85	1.41	2.17	12	p=0.05
Feelings of pressure	1.00	1.73	2.08	12	p=0.06
Passage of time	0.31	1.55	0.72	12	p=0.49
Future plans	0.62	1.66	1.34	12	p=0.21
Pain Sensitivity	0.15	1.52	0.37	12	p=0.72
Work	1.31	2.06	2.29	12	p=0.04

Table 16 Results of paired t-tests between mean mixed state (BLIP mania + depression items) scores of bipolar subjects relating to a manic episode and an episode of unreciprocated love

Half of the mania items were not found to be significantly different between mania and unreciprocated love (see Table 14). Only two depression items (Table 15) were

found to be significantly different: mood was shown to be significantly lower in unreciprocated love ($t=3.09$, $df=12$, $p<0.01$) and physical activity was significantly higher in mania ($t=3.83$, $df=12$, $p<0.01$). Comparison between the mixed state scores (Table 16) again showed only two items to be significantly different: physical activity ($t=2.94$, $df=12$, $p<0.01$) and verbal activity ($t=3.07$, $df=12$, $p<0.01$).

3.3.3 Summary scores

Paired t-tests were carried out between the total mania, total depression and mixed state scores of the bipolar group in reciprocated love, unreciprocated love and mania. The results of the comparisons are shown in Table 17 and Table 18. No significant difference was found between the bipolar group's total mania, depression or mixed state scores in reciprocated love and in mania at the 0.01 level ($t=2.53$, $df=10$, $p=0.03$ [mania]; $t=1.74$, $df=10$, $p=0.11$ [depression]; $t=2.46$, $df=10$, $p=0.03$ [mixed state]). The total depression and mixed state scores in unreciprocated love are not significantly different from those in mania at the 0.01 level of significance ($t=1.40$, $df=12$, $p=0.19$ [depression; $t=2.65$, $df=12$, $p=0.02$ [mixed state]).

Comparisons	Paired Differences		t	df	Sig. (2-tailed)
	Mean	Std. Deviation			
Total Mania scores	-9.23	13.49	2.47	12	p=0.03
Total Depression scores	-6.54	8.21	2.87	12	p<0.01
Total Mixed state scores	-110.92	130.14	3.07	12	p<0.01

Table 17 Results of paired t-tests comparing total BLIP scores for mania, depression and mixed state items of bipolar subjects in reciprocated love and in mania

Comparisons	Paired Differences		t	df	Sig. (2-tailed)
	Mean	Std. Deviation			
Total Mania scores	-18.85	12.62	5.39	12	p<0.001
Total Depression scores	4.77	12.26	1.40	12	p=0.19
Total Mixed state scores	-103.77	141.13	2.65	12	p=0.02

Table 18 Results of paired t-tests comparing total BLIP scores for mania, depression and mixed state items of bipolar subjects in unreciprocated love and in mania.

3.4 Analysis of DSM-IV criteria for a manic episode applied to love

The DSM-IV criteria for a manic episode were compiled into a simple checklist format for the purposes of the study. As a result of the self-report nature of this checklist, it is not possible to apply the diagnostic criteria to the individuals in this study as strictly as would be possible through structured interview. The results of this measure are therefore reported firstly as a severity measure and secondly as a "crude" diagnostic measure.

3.4.1 Reciprocated love episode

28 of the 44 control subjects (64%) recalled a significant disturbance of mood during their reported episode of reciprocated love or infatuation. Of this subgroup of 28 individuals, half reported their mood disturbance to have lasted for more than a week (DSM-IV criterion A for manic episode); the remaining half reported the period of mood disturbance as lasting for at least four days (DSM-IV criterion A for hypomania). In addition to experiencing a period of mood disturbance, 18 control subjects (64%) reported three or more DSM-IV symptoms of mania but not necessarily with any accompanying functional impairment. 5 individuals (18%) met criteria for a hypomanic episode, and 2 (7%) met criteria for a manic episode.

DSM-IV criteria	Control group n (%)	Bipolar group n (%)	X^2
Persistently elevated, expansive or irritable mood	28 (64%)	16 (89%)	$X^2=3.96$, df=1, $p<0.05$
lasting for ≤ one week	14 (50%)	7 (44%)	$X^2=0.17$ (n.s.)
≤ 4 days	14 (50%)	9 (56%)	$X^2=0.17$ (n.s.)
Mood disturbance and 3 or more manic symptoms	18 (64%)	10 (63%)	$X^2=0.01$ (n.s.)
Met criteria for mania	2 (7%)	1 (6%)	$X^2=0.01$ (n.s.)
Met criteria for hypomania	5 (18%)	3 (18%)	$X^2=0.004$ (n.s.)

Table 19 Summary of results of DSM-IV criteria for mania applied to a period of reciprocated love by control and bipolar subjects.

16 individuals in the bipolar group (89%) recalled a significant disturbance of mood during their reported episode of reciprocated love or infatuation. One individual (6%) met criteria for a full manic episode and 3 individuals (18%) met criteria for a hypomanic episode. Of the 16 bipolar subjects who reported significant mood disturbance, 10 (63%) reported three or more DSM-IV symptoms of mania without necessarily experiencing any accompanying functional impairment.

These results are summarised in Table 19.

3.4.2 Unreciprocated love episode

16 of the 44 control subjects (36%) recalled a period of mood disturbance during their reported episode of unreciprocated love or infatuation. Of these 16 subjects, 6 (37%) reported the mood disturbance to have persisted for one week or more; the remaining 10 subjects (63%) recalled it as having lasted for at least 4 days. No control subjects met criteria for a full manic episode, and only 1 met criteria for hypomania. Only 2 control subjects reported three or more symptoms of mania in addition to the mood disturbance.

DSM-IV criteria	Control group n (%)	Bipolar group n (%)	X^2
Persistently elevated, expansive or irritable mood	16 (36%)	12 (67%)	X^2=0.05 (n.s.)
lasting for ≤ one week	6 (38%)	7 (58%)	X^2=1.2 (n.s.)
≤ 4 days	10 (62%)	5 (42%)	X^2=1.2 (n.s.)
Mood disturbance and 3 or more manic symptoms	2 (13%)	5 (42%)	X^2=3.10 (n.s)
Met criteria for mania	0	2 (17%)	X^2=2.86 (n.s.)
Met criteria for hypomania	1 (6%)	0	X^2=0.78 (n.s.)

Table 20 Summary of results of DSM-IV criteria for mania applied to a period of unreciprocated love by control and bipolar subjects.

12 of the bipolar group (67%) recalled experiencing a persistent disturbance in mood during their reported episode of unreciprocated love or infatuation. Of these 12 individuals, 2 met criteria for a manic episode, none met criteria for hypomania. 5 (42%) reported three or more symptoms of mania without necessarily any functional impairment.

These results are summarised in Table 20.

3.4.3 DSM-IV symptoms reported in reciprocated love

There was no difference between the two groups in terms of the number of DSM-IV symptoms of mania reported in their recalled episode of reciprocated love (X^2=1.83, n.s.). The most commonly reported symptoms by control subjects were inflated self-esteem, decreased need for sleep, distractibility and increase in goal-directed activities; bipolar subjects most commonly reported inflated self-esteem, being more talkative, decreased sleep and increased goal-directed activity (see Figure 10).

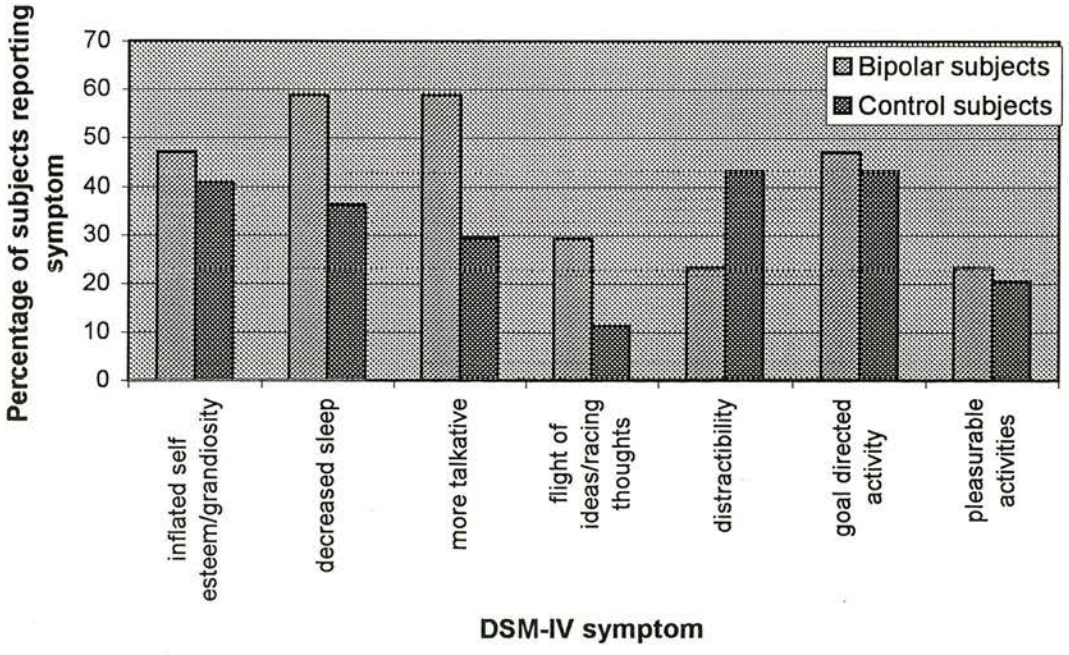

Figure 10 DSM-IV symptoms of mania reported by control and bipolar subjects in episode of reciprocated love

3.4.4 DSM-IV symptoms reported in unreciprocated love

A significantly greater proportion of bipolar subjects reported symptoms of mania than control subjects during their recalled episode of unreciprocated love (X^2=9.7,

df=1, $p<0.01$), as shown in Figure 11. The most common symptom reported by control subjects was distractibility, whereas bipolar subjects most commonly reported decreased sleep, an increase in talkativeness, racing thoughts and flight of ideas, increased goal-directed activity and engagement in excessive pleasurable activity as well as distractibility.

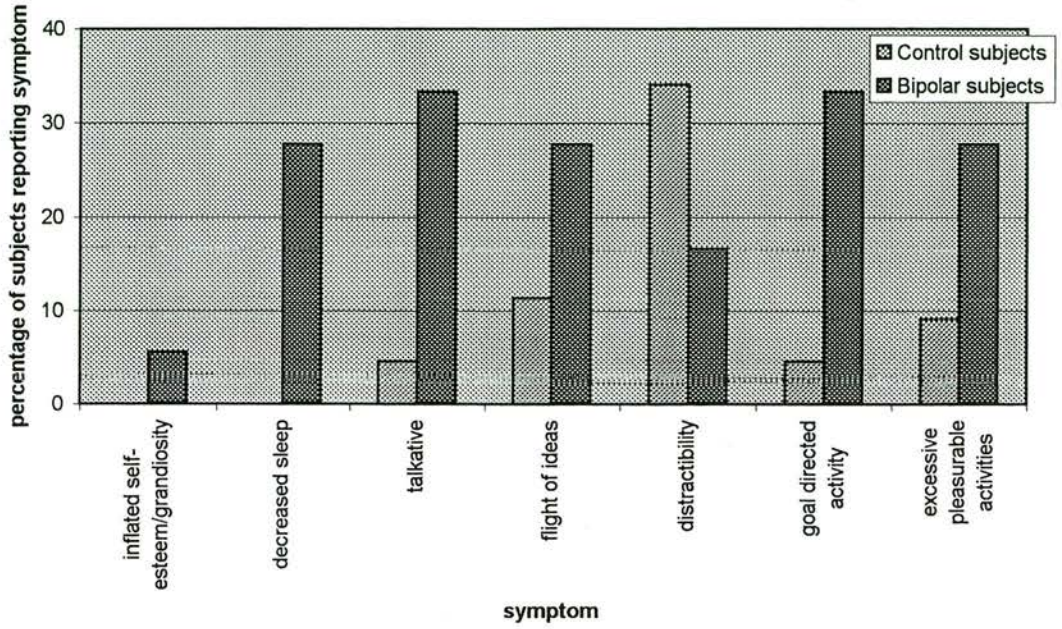

Figure 11 DSM-IV symptoms of mania reported by control and bipolar subjects in episode of unreciprocated love

3.5 Analysis of additional measures

3.5.1 GHQ

The control group had a mean score of 10.1 (s.d.=4.8) on the GHQ. The bipolar group's GHQ mean score was 14.1 (s.d.=7.0), significantly higher than the control group ($t=2.60$, df=60, $p\leq 0.01$). A summary of GHQ scores is given in Table 21.

Group	N	Range	Mean (s.d.)	Skewness (s.e.)	Kurtosis (s.e.)
Bipolar Group	18	4-34	14.1 (7.0)	1.35 (0.54)	2.63 (1.04)
Control Group	44	3-23	10.1 (4.8)	0.93 (0.36)	0.38 (0.70)

Table 21 Summary of GHQ results

GHQ scores were found to be significantly positively correlated with internal dysfunctional emotion regulation strategies ($r=0.55$, $df=60$, $p<0.01$) and negatively correlated with the presence of internal functional strategies ($r=-0.42$, $df=60$, $p<0.01$)

No relationship was found between GHQ score and BLIP scores suggesting that recall of symptoms experienced during episodes of love, reciprocated or unreciprocated, is not influenced by current psychological functioning as measured by the GHQ.

3.5.2 Emotion Regulation Questionnaire (ERQ)

All subject's scores on the ERQ were grouped into four scales relating to use of coping strategies: internal dysfunctional; internal functional; external dysfunctional and external functional. The mean and distribution of these scores for both groups are summarised in Table 22.

ERQ scale	N	Range	Mean (s.d.)	Skewness (s.e.)	Kurtosis (s.e.)
Control group					
Internal dysfunctional	44	6-17	10.18 (2.64)	0.60 (0.36)	-0.13 (0.70)
Internal functional	44	9-22	16.25 (2.48)	-0.58 (0.36)	1.17 (0.70)
External dysfunctional	44	5-12	7.39 (1.65)	0.90 (0.36)	0.64 (0.70)
External functional	44	8-18	13.09 (2.41)	0.20 (0.36)	-0.52 (0.70)
Bipolar group					
Internal dysfunctional	18	7-26	12.39 (4.23)	1.96 (0.54)	5.99 (1.04)
Internal functional	18	11-20	15.28 (2.56)	0.31 (0.54)	-0.73 (1.04)
External dysfunctional	18	6-17	7.72 (2.74)	2.72 (0.54)	7.99 (1.04)
External functional	18	7-16	11.67 (2.54)	-0.06 (0.54)	-0.84 (1.04)

Table 22 Distribution of scores on the four emotion regulation strategy scales.

Independent samples t-tests were carried out between the mean scores of each group on the four emotion regulation scales (Table 23). The bipolar group showed

significantly greater use of internal dysfunctional coping strategies for regulating their emotions than the control group (t=2.49, df=60, p<0.05) and significantly lower use of external functional coping strategies (t=2.08, df=60, p<0.05).

Emotion regulation scale	Mean (s.d.) CONTROL BIPOLAR	T value	Degrees of Freedom	Significance (p value)
Internal dysfunctional	10.18 (2.64) 12.39 (4.23)	2.49	60	<0.05
Internal functional	16.25 (2.48) 15.28 (2.56)	1.39	60	<0.17
External dysfunctional	7.39 (1.65) 7.72 (2.74)	0.60	60	<0.55
External functional	13.09 (2.41) 11.67 (2.54)	2.08	60	<0.05

Table 23 Comparison between groups on the four scales of emotion regulation

In the bipolar group only, age was found to correlate significantly with use of functional emotion regulation strategies (r=0.56, df=15, p=0.02). This relationship was not present in the control group.

3.6 Pathology in love and emotion regulation

Pearson's correlations were calculated in order to examine the relationships between BLIP variables and ERQ variables.

Table 24 displays the Pearson correlation coefficients between BLIP total scores (depression, mania and mixed state) and the four emotion regulation scales (internal functional, internal dysfunctional, external functional and external dysfunctional).

3.6.1 Reciprocated love

BLIP symptoms of mania were found to be positively correlated with the presence of dysfunctional emotion regulation strategies (r=0.270, df=59, p=0.04 [internal]; r=0.449, df=59, p<0.01 [external]). Depression symptoms were also positively correlated with internal dysfunctional coping strategies (r=0.273, df=59, p=0.03). The mixed state score of reciprocated love also correlated significantly with the presence of dysfunctional coping strategies (r=0.304, df=59, p=0.02 [internal]; r=0.309, df=59, p<0.02 [external]).

	Mania R. love	Depression R. love	Mixed R. Love	Mania U. love	Depression U. love	Mixed U. Love	Internal dysfunctional	Internal functional	External dysfunctional	External functional
Mania R. love	1									
Depression R. love	0.268* p=0.04	1								
Mixed R. Love	0.702** p<0.01	0.810** p<0.01	1							
Mania U. love	0.397** p<0.01	0.261* p=0.04	0.337** p=0.01	1						
Depression U. love	0.479** p<0.01	0.536** p<0.01	0.696** p<0.01	0.225 p=0.08	1					
Mixed U. Love	0.495** p<0.01	0.413** p<0.01	0.568** p<0.01	0.826** p<0.01	0.654** p<0.01	1				
Internal dysfunctional	0.270* p=0.04	0.273* p=0.03	0.304* p=0.02	0.191 p=0.14	0.448** p<0.01	0.278* p=0.03	1			
Internal functional	-0.091 p=0.49	-0.002 p=0.99	-0.050 p=0.71	-0.160 p=0.22	-0.170 p=0.19	-0.191 p=0.14	-0.07 p=0.59	1		
External dysfunctional	0.449** p<0.01	0.121 p=0.12	0.309* p=0.02	0.445** p<0.01	0.214 p=0.10	0.456** p<0.01	0.196 p=0.13	-0.120	1	
External functional	-0.142 p=0.28	-0.99 p=0.45	-0.177 p=0.17	-0.053 p=0.69	-0.213 p=0.10	-0.125 p=0.34	-0.188 p=0.14	0.303* p=0.02	0.113 p=0.38	1

Table 24 Pearson correlation coefficients for total BLIP and DSM-IV scores (both groups) in reciprocated and unreciprocated love and ERQ scales (n=61)

Key: R.love = reciprocated love; U.love = unreciprocated love *** correlation significant at 0.05 level; ** correlation significant at 0.01 level**

In the control group, the presence of internal dysfunctional strategies was significantly correlated with the total depression scores in reciprocated love ($r=0.485$, $df=42$, $p<0.001$). In the bipolar group, the presence of external dysfunctional strategies was found to have a high significant correlation with the total mania score in reciprocated love ($r=0.816$, $df=15$, $p<0.001$).

3.6.2 Unreciprocated love

Highly significant correlations were found between the presence of external dysfunctional coping strategies and BLIP symptoms of mania ($r=0.445$, $df=59$, $p<0.01$) and between internal dysfunctional coping strategies and BLIP depression symptoms ($r=0.448$, $df=59$, $p<0.01$) in unreciprocated love. The mixed state score of unreciprocated love was significantly correlated with dysfunctional emotion regulation ($r=0.278$, $df=59$, $p=0.03$ [internal]; $r=0.456$, $df=59$, $p<0.01$ [external]).

In the control group, the presence of internal functional emotion regulation strategies was found to be negatively correlated in unreciprocated love with the total mania score ($r=-0.364$, $df=42$, $p=0.015$), depression score ($r=-0.372$, $df=42$, $p=0.013$) and mixed state score ($r=-0.440$, $df=42$, $p<0.01$). Internal dysfunctional strategies were correlated with total depression scores ($r=0.513$, $df=42$, $p<0.001$). The bipolar group's total mania score in unreciprocated love was significantly correlated with external dysfunctional strategies ($r=0.798$, $df=15$, $p<0.001$), as was the mixed state score ($r=0.69$, $df=15$, $p=0.002$).

3.7 Age, time since episode and pathology in love

Significant negative correlations were found in the control group between age and total BLIP scores for depression ($r=-0.383$, $df=34$, $p=0.02$) and mixed state ($r=-0.410$, $df=34$, $p<0.01$) in reciprocated love, and between total BLIP scores for mania ($r=-0.338$, $df=34$, $p=0.04$), depression ($r=-0.423$, $df=34$, $p<0.01$) and mixed state ($r=-0.412$, $df=34$, $p<0.01$) in unreciprocated love (Table 25). No correlations between age and BLIP symptoms were found in the bipolar group.

	Mania R.love	Depression R.love	Mixed R.love	Mania U.love	Depression U. love	Mixed U. Love
Age	-0.249	-0.383*	-0.410**	-0.338*	-0.423**	-0.412*
	p=0.14	p=0.02	p<0.01	p=0.04	p<0.01	p<0.01

Table 25 Pearson's correlation coefficients for control group's total BLIP scores in reciprocated and unreciprocated love and age.

Key: reciprocated love; U.love = unreciprocated love correlation significant at *0.05; **0.01

In the control group, the total BLIP depression score in reciprocated love was found to have a significant negative correlation with time elapsed since the recalled episode of love (r=-0.398, df=28, p=0.03), that is, the longer ago the episode of love was, the fewer the symptoms of depression related to that episode are recalled. No correlations were found between BLIP scores and time elapsed in the bipolar group.

3.8 Qualitative results

The following is an excerpt of an interview with one subject interviewed in more detail about their experiences. The words of a hypomanic? Or someone in love?

> *"I just felt totally elated, and I had utter conviction in all my thoughts and plans. I'm impulsive anyway, but it got even worse. Jobs around the house that I'd been putting off for months because they seemed too difficult became possible to do all in a day. I was convinced in my ability to drive straight to places that I'd never been to before, rather than just go to where I knew. I drove too fast, had the car stereo on very loud (which is unusual, normally I hate loud music when I'm driving), and I bought all the things that I had been thinking about saving up for all at once on my credit card, in complete certainty that I could simply pay it off next month (I'm still paying it off). I seemed to take a ridiculous pleasure in the smallest most insignificant things. I had all these completely irrational plans for the future, which were all feasible in my mind, but looking back were just madness. The world felt like a fabulous place to be in and I felt like I could do anything I wanted." (LS)*

Subjects in the bipolar group were asked whether or not in their experience being in love shared any resemblance to their experience of being manic:

> *"So love and mania? Yes, they are similar. There's the same buzz, like a buzzing in my head – a real feeling, not a metaphorical one. My head feels different. I feel more active, everything is faster, and so much more fun! It's a feeling of high self-esteem, feeling good about myself, I feel likeable, loveable even, worthwhile and confident that I can do things. It's the complete antithesis of depression, whether that's love or mania." (TM)*

> *"Yes I think it's similar, being in love and being high. It's like a special kind of happiness" (CW)*

Interestingly, the only person from the bipolar group who did not agree that the love and mania shared similarities had never experienced the lesser state of hypomania, but only three severe episodes of mania (all of which required hospitalisation):

> *"It's a different kind of buzz for me, when I'm in mania it's like being on an express train with no brakes, but eventually the wheels have to come off the rails and you crash, it's a giant roller coaster ride. The world seems like Utopia, everyone is your friend and I'm on the go 24/7, everything I do is accelerated. The worst bit is hitting reality and realising all the things you've done. Being in love for me has always been different; it's more like a companionate type of love, not a sexual thing but more a partnership. I think I've always looked for lasting relationships, and the security and stability that comes with that." (MA)*

One control subject recalled virtually no change in mood, behaviour or cognition (reflected in very low scores on the quantitative measures) when she met and fell in love with her husband. When asked about this, she explained it as follows:

> *"it was a very calm, romantic love that happened gradually over several months. I knew that I had found 'the one' and I could be myself. It wasn't a*

stormy love because I had this very strong sense of security". (NM)

Those interviewed were also asked about a specific episode of reciprocated or unreciprocated love. The following is a recollection by a control subject of a recent episode of reciprocated love:

> *"I remember being completely hyperactive and so aware of everything, that whole wonderful feeling of looking into someone's eyes and feeling your whole body tingle and feel so alive, of nothing else mattering or even existing." (RW)*

An individual from the bipolar group recalled an unrequited love that seemed to serve a defensive function for her:

> *"He was just being a friend, but I became convinced he felt the same way about me as I did about him. I was reading into things he said or letters he wrote, but it just simply wasn't there, he was being nice. I wasn't high or low at the time, I think it was to do with my emotional state of wanting to be in love with him, not my manic depression that made me feel that way for so long. He was everything my husband wasn't, and I was so unhappy in my marriage. This went on for a couple of years, I clung on to these false ideas because it helped me, before I hit reality and realised everything I had believed wasn't true." (CC)*

How people cope with the uncertainty of love was also enquired about. One control subject described coping with anxiety at the beginning of an uncertain love affair:

> *"How did I cope? I don't really know, I did more exercise over those few weeks than ever before to try and burn off some energy and help me sleep. I got lots done though because I had so much energy, it was just the anxiety of it not working out the way I wanted that was difficult to deal with. I talked to friends a lot and I suppose that helped to keep some perspective on what was really important, and how realistic things were." (KF).*

4 Discussion

4.1 Summary of results

4.1.1 Comparing love and mania between control subjects and bipolar subjects

No significant difference was found between the ratings of elevated mood in control subjects' experience of reciprocated love and mania in bipolar subjects, which is of particular interest as the central diagnostic feature of mania is the presence of elevated mood. Although the bipolar group in mania reported significantly higher mania, depression and mixed state scores, the rank order of the BLIP items in each condition are significantly positively correlated. This suggests that reciprocated love is a similar but less extreme state than mania, supporting the hypothesis that love may be part of the spectrum of mania.

No relationship was found between the mania symptoms reported by controls in unreciprocated love and the bipolar group in mania. However, the correlation between the mixed state profiles of unreciprocated love and mania was higher than the mixed state profiles of reciprocated love and mania. This suggests that unreciprocated love is more similar to the mixed state of mania than is reciprocated love.

Both groups reported significantly higher mania scores in reciprocated love than in unreciprocated love, whereas in unreciprocated love depression scores were found to be significantly higher. It seems therefore that reciprocated love bears a greater similarity to mania, and unreciprocated love is more like depression or the mixed state of mania.

4.1.2 Comparing love and mania within bipolar subjects

The profiles of mania, depression and mixed state scores for bipolar subjects in mania and in reciprocated love were found to be highly significantly correlated. Unlike the control subjects however, the two conditions were not significantly different in numerical terms either. The implication of this finding is that while control subjects in love were found to experience a similar pattern of emotional,

behavioural and cognitive disturbance as bipolar subject did in mania but to a lesser degree, bipolar subjects reported the same pattern and degree of disturbance in mania and in love.

The highest correlation (r_s=0.98) between the patterns of disruption was found between the mixed state scores of unreciprocated love and those of mania, however the degree of severity of manic symptoms was lower than observed in reciprocated love.

4.1.3 Functional impairment of love and mania

Using the DSM-IV criteria for mania as a crude diagnostic tool, the same proportion of both control and bipolar groups met the criteria for mania and hypomania with respect to their recalled episodes of reciprocated love. Although it has been shown that the bipolar group experienced the same pattern and degree of psychological disruption in mania and in love, a high percentage of the group (89%) reported "persistently elevated, expansive or irritable mood" and symptoms of mania when in love without necessarily experiencing any functional impairment.

4.1.4 GHQ

No relationship was found between GHQ score and BLIP scores suggesting that recall of symptoms experienced during episodes of love, reciprocated or unreciprocated, is not influenced by current psychological functioning as measured by the GHQ.

4.1.5 Emotion regulation and pathology in love

The bipolar group showed greater use of internal dysfunctional strategies and lower use of external functional strategies for emotion regulation than the control group.

Symptoms of mania in reciprocated love were found to be positively correlated with the presence of dysfunctional emotion regulation strategies (whether internal or external). Of particular interest is the finding that in unreciprocated love, mania symptoms are strongly correlated with the presence of external dysfunctional strategies, and depression symptoms are strongly correlated with the presence of internal dysfunctional emotion regulation strategies. In unreciprocated love, the

negative correlation between control subjects' internal functional emotion regulation scores and symptoms of mania and depression suggests that the presence of internal functional strategies serve to defend against psychopathology when love is unrequited. For bipolar subjects it seems that there is a more significant relationship between external dysfunctional emotion regulation and the manifestation of manic or depressive symptoms whether love is reciprocated or not.

4.1.6 Age and pathology in love

In the control group only, age was found to have a significant negative correlation with the total scores of depression and mixed state in reciprocated love, and the total mania, depression and mixed state scores of unreciprocated love, thus with increasing age, fewer symptoms of mania or depression are reported in connection with love.

4.2 Implications of results

The finding that love and mania appear to be overlapping states in pattern and, in key symptoms, degree of psychological disruption raises several questions relating to the diagnostic and classification systems for psychiatric disorders.

DSM-IV (APA, 1994) cites *functional impairment* as being central to the diagnosis of mania. However, two individuals experiencing a similar psychological state may not necessarily both experience functional impairment. Given that the two states are empirically similar, it seems that variables other than the psychiatric condition itself may be mediating the diagnosis, thus it must be questioned what a classification system such as DSM-IV actually diagnoses.

The boundaries between mania and hypomania hinge upon an ill defined set of qualifications such as "mild", "marked" "moderate" and "severe" relative to severity of mood or functional disturbance. Fulford (1995) argues that these qualifying terms should be made more explicit as they are value judgements critical to the diagnosis of psychiatric disorder. DSM-IV further complicates the picture by adding that hypomania *can* cause social or occupational impairment (pg. 365), thus blurring the distinction between hypomania and mania.

Bipolar subjects in this study were found to experience not only a similar pattern of symptoms in both love and mania, but also the same degree of disturbance. This suggests that individuals with bipolar disorder may have a tendency to experience heightened states of emotional disruption irrespective of cause. This may be the manifestation of a biological or genetic vulnerability that interferes with arousal inhibition, or an expression of dysfunctional emotion regulatory systems. Alternatively, for people who have a vulnerability to depression, love could be an alternative form of mania which acts to take the individual out of the depressed state, albeit temporarily.

The results of the present study show that individuals with bipolar disorder regulate their emotions in a dysfunctional way relative to a control group. The bipolar group were shown to have greater use of internal dysfunctional emotion regulation strategies, and a relative poverty of external functional strategies. As Maccoby (1980) has noted, self-regulation is recognised to be the foundation of organised behaviour, therefore to find that a group of people who experience mania (the most extreme manifestation of disorganised behaviour) have poor emotion regulation is perhaps unsurprising. However, whether poor emotion regulation is a contributing factor to the development of mania, or whether dysfunctional strategies develop when functional ones prove unsuccessful in regulating uncontrollable manic states is not clear.

There are a number of possible explanations for the finding that in control subjects age is negatively correlated with symptoms of mania or depression in reciprocated and unreciprocated love. It could be that with increasing age one learns to manage the emotions of love in a more functional way, although in this study no association was found between age and increase of functional (or decrease of dysfunctional) emotion regulation strategies in the control group. Or it may be possible that with increasing time since the recalled episode of love the memory of the impact it had on one's psychological functioning becomes less clear, however this is a less likely explanation given that an association between time elapsed and the level of disruption reported was found for only one of the six variables (depression in reciprocated love). A more plausible explanation might be drawn from Lee's (1988)

work on love styles, in which he suggests that the Manic love style (most like the psychological turmoil of mania) is most typical of young people. Lee suggests that our choice of preferred love style changes over time, and that passionate, erotic love succumbs to what he calls "realistic love", that is, romance is guided by complementary needs, and decisions about partners are based on sociologically predictable patterns. Thus, as one gets older, it could be that the experience of love (whether reciprocated or unreciprocated) becomes less psychologically disruptive due to choices made about preferred love styles.

4.3 Discussion of results

The principle finding from this study is that the states of love and mania share patterns of emotional, behavioural and cognitive disruption. In individuals who do not have experience of mania, the pattern of disruption in love is similar to that in mania as reported by people with bipolar disorder, but to a less severe degree. In the group of individuals with bipolar disorder who participated in this study, the degree of disruption reported in love is at a comparable level to their level of psychological disturbance when manic. As noted above, the latter state leads to a level of functional impairment sufficient to merit the psychiatric diagnosis of a major affective disorder, whereas the other does not. This observation invites speculation about the differences between love and mania that, although the same level of psychological disturbance accompanies both, one results in greater interference with everyday functioning than the other.

If love and mania share commonalities, it is also necessary to consider the shared psychological systems underlying the two states through which an understanding of the vulnerability to dysfunctional expressions of psychological distress may be sought.

As discussed in the Introduction (section 1.3, Regulation of Emotion), self-regulation is a developmental task mediated by attachment bonds. The development of functional emotion-focused coping strategies, such as making supportive friendships, requires the presence of representational models of relationships based in secure

attachment bonds (Zeidner & Endler, 1996) and that attachment difficulties become linked into subsequent relationships and coping mechanisms (e.g. Bowlby, 1988). It is therefore postulated that poor emotion regulation and emotion-focused coping strategies may be grounded in disrupted primary attachment bonds in early childhood. The link between attachment and self-regulation and organisation of behaviour is clearly observable in the most extreme cases of disrupted attachment bonds ("disorganised" attachment) resulting from emotionally or physically abusive parenting and characterised by fragmented, chaotic and erratic behaviour (Main & Solomon, 1990).

Hazan and Shaver's (1987) study using attachment theory as a framework for conceptualising romantic love has demonstrated that the nature of adult love relationships reflect attachment styles developed in infancy. Those adults who classified their early attachment styles as "secure" tended to report love as being a happy and trusting experience. Those who classified themselves as "avoidant" tended to be characterised by a fear of intimacy, and "anxious/ambivalent" lovers reported love to be an emotional roller-coaster of highs and lows (Hazan & Shaver, 1987).

Attachment theory provides a developmental context for understanding psychological vulnerabilities which impact in adulthood as fundamental problems in adult attachment relationships. The lack of a "secure base" provided by primary attachment figures in infancy results in internal working models of attachment figures as temporary and inconsistent, rather than permanent and predictable (Bowlby, 1988). Consequently, the insecurely attached child may grow up with an intrinsic sense of being unlovable, and an idealised image of the perfect love object. The constant, obsessive search for the ideal partner becomes a primary focus in seeking the secure base needed for survival, and evidence that he/she is in fact loveable. The individual may become preoccupied with attachment relationships, aiming always to be in love and to be loved. Falling in love is accompanied by an emotional high resulting from achieving the desired state of love, but is inevitably followed by a sense disappointment and consequent breakdown of the attachment relationship upon realisation that the idealised image is in reality a fantasy.

This model offers an understanding of Hazan and Shaver's (1987) findings that "insecurely attached" adults hold a desire for reciprocation and union in love, and have relationships characterised by obsession, jealousy and emotional highs and lows, whereas "securely attached" adults are found to be able to accept their partners in spite of their faults. A parallel may be drawn here with the manic-defence hypothesis: for those with a history of poor attachment relationships the belief in the possibility of achieving the perfect state of reciprocated, idealised love defends against an underlying depression resulting from internal models of the self as being bad and unlovable and from early experience of loss and abandonment. The manic-defence hypothesis holds that mania is an extreme defensive function against underlying depression, as perhaps the search for love is to those with disrupted attachment styles. This premise is supported by Bak (1973), who proposed that being in love is a way of avoiding melancholia or regression to narcissism by means of finding a substitute object in order to undo the loss of an important object.

The results of the present study demonstrate a link between dysfunctional emotion regulation and the expression of manic symptoms when love is reciprocated, an illustration perhaps of the euphoria experienced upon achievement of the sought-after idealised love object. Symptoms of depression were found to be associated with dysfunctional emotion regulation when love is unrequited, which may suggest that the non-reciprocation of love serves to activate negative assumptions about the self as being worthless and unlovable.

The discussion above postulates an underlying system shared between the states of love and mania as a framework for understanding the psychopathological expression of both conditions. However, as noted previously, mania is associated with a level of impairment in functioning that is not commonly observed with love.

One clear difference between love and mania is the cause of the emotional state. Jacobson (1971) considered passionate love to be a complex affective disposition, structurally similar to a mood state but specifically *object-directed*, which hypomanic mood is not. When in love, one has an explanation for the disrupted psychological state, whereas in mania there is no focal reason for such a dramatic elevation in

mood. The significance of this can be illustrated by analogy: the way in which one might cope with a headache, for example, depends upon the attribution of the headache either to a relatively benign cause (such as excessive alcohol consumption) or to a catastrophic source (such as a brain tumour). The former attribution would be more likely to result in functional management strategies (such as taking painkillers and resolving not to do it again) whereas the latter may lead to an increase in worry, stress and hyper-alertness to changes in physiological state, thus potentially exacerbating the original problem. As Jones (1979) noted, humans tend to attribute events to internal rather than situational causes, and the cognitive bias of those prone to depression tend to attribute negative or pessimistic explanations rather than positive ones (Fennell, 1989). Clark's (1986) cognitive model of panic disorder is another example of how the interpretation of physiological sensations (related to anxiety, such as palpitations or dizziness) as indications of an impending catastrophic event (e.g. a heart attack or death) is hypothesised to lead to an increase in autonomic arousal and feelings of inability to cope. As fear is usually accompanied by autonomic arousal, an individual who is fearful of bodily sensations will be susceptible to feed-forward escalation of symptoms (Clark, 1986).

A similar process may be applied to the understanding of the progression of prodromal signs of mania to a manic episode and how mania is therefore functionally disruptive, where love is not. The appraisal of physiological, cognitive or behavioural changes as being indicative of the beginnings of a manic episode may result in the adoption of one of two dysfunctional models of coping: either denial of the manic state as being harmful ("I like having so much energy and feeling so creative") and therefore not actively seeking to contain one's psychological state (dysfunctional positive model); or the indulgence in coping behaviours for an unwanted manic state that serve to exacerbate the disruption such as drinking alcohol or not adhering to daily routines ("is there any point, I'm going high anyway") (dysfunctional negative model). This model is a dynamic one, as, for example, the interpretation of symptoms as prodromes to a manic or depressive episode can be functional or dysfunctional, depending on the accuracy of the appraisal. The belief that one is entering a manic episode can be functional if indeed the observed

symptoms are prodromal indicators of mania, or dysfunctional if they are simply fluctuations of normal states.

Power and Dalgleish's (1997) SPAARS multi-level model of emotion provides a framework for understanding the role of cognitive appraisal and interpretation of internal or external events and how this relates to emotional experience. Jones (2001) applied this model to the theory of disrupted circadian rhythms as being one set of events that are responded to initially within the low-level analogical (sensory-based) system and are subsequently open to interpretation at higher schematic, associative and propositional levels. The resultant emotion is dependent upon the interpretation at these levels. Jones' (2001) proposition that manic or depressive phases in bipolar disorder are precipitated by disrupted circadian rhythms is somewhat limited by its narrow range of triggering events. The present study has shown that for people with bipolar disorder, love is potentially as disrupting an event at a psychological level and indeed has been observed to trigger full manic episodes (Fenchel, 1998), suggesting that the range of triggering events is clearly broader than Jones suggests.

In summary, it is suggested that early disrupted attachment relationships result in poor models of emotion and relationships, and a failure to achieve developmental tasks necessary for regulation of emotion. Where there is also a biological or genetic vulnerability to affective disorders, the expression of psychopathology is mediated by cognitive schemas (functional or dysfunctional) for the appraisal of internal dysregulation. The impact of disrupted attachment and poor emotional regulation may also be expressed in pathological management of interpersonal relationships where there is not necessarily any inherited vulnerability to mood disorders.

4.4 Clinical implications

The clinical application of the model outlined above has been noted by Lam and colleagues (1999) who have observed that patients with bipolar disorder who relapse frequently find in difficult to discriminate normal mood swings from prodromal indications of an illness episode. This model is linked to the therapeutic approach of teaching self-monitoring skills to patients with bipolar disorder in order that early

warning signs may be detected and interpreted correctly (i.e. the presence of an idiosyncratic constellation of symptoms, rather than just one symptom independently of others) and functional coping strategies instigated. To illustrate: if one's representation of hypomania is that it is a useful and preferred state, a dysfunctional positive model of elevated energy levels in the early stages of hypomania would be to use it to catch up when one is behind at work. The consequence of this is that it may lead to behaviours (such as going without sleep), which result in a dysfunctional manic state. The functional realistic model of increased energy in hypomania would be to be more careful in regulating circadian rhythms, adhering to routines and so on, such that the raised energy levels can be used advantageously.

The parallel drawn between mania and love as defence mechanisms against depression also has clinical application, both when working with individuals with bipolar disorder and with people suffering from depression in the context of problematic interpersonal relationships. In cognitive therapy terms, mania and love may be viewed as compensatory mechanisms for an underlying belief that one is worthless or unlovable. Identification of this dysfunctional belief would provide a context for identifying behaviours that serve to overcompensate for the belief (such as desperately or obsessively seeking out romantic attachments) and how the consequences of these behaviours ultimately reinforce the belief (such as the failure of an ill judged relationship). Therapists working with a cognitive behavioural model of therapy with an individual who has a chronic history of failed relationships (for example) must recognise the potential for apparently therapeutic tasks to reinforce underlying beliefs of worthlessness and of being unlovable. At a relatively superficial level of therapy, behavioural experiments carried out in search of evidence that one is in fact lovable may strengthen the belief that one is not, if in fact every relationship is destined to fail because the search is for an over-idealised partner to compensate for the inadequacy of primary attachment figures in early life. Similarly, manic individuals with unstable self-esteem and unrealistic standards for success lead to an overly positive, grandiose concept of self and others which is equally as unrealistic as the denigrated concept of self (or other) in depression. Neale's (1988) reformulation of the manic-defence hypothesis suggests that the

function of this idealisation of self is to keep distressing cognitions out of consciousness, however it leads to polarised self and other concepts. Using this model, the therapeutic aim would be to integrate the overly positive and negative aspects of self through challenging of such dichotomous cognitive distortions.

4.5 Limitations of study

There are a number of limitations of this study worthy of consideration.

4.5.1 Limitations in design

The design of the study relied upon the self-report and recall of psychological states. To what extent this is a limitation of the design is not necessarily immediately apparent, as any recall bias may be consistent between states.

The bipolar subjects were not asked whether or not their recalled periods of love coincided with episodes of mania, which may have confounded the attribution of symptoms present to the experience of love.

As discussed in the Introduction, there are many types and styles of love, of which "passionate" or "erotic" love most closely resemble mania in description. It may have been profitable therefore either to have more clearly defined to participants the type of love of interest in the research question, or to have asked subjects to define the type of love they believed themselves to have been recalling. Given the limitations of numbers, the former of these two proposals may have been of greatest benefit to the analysis and interpretation of results.

The number of subjects in the bipolar group was small for between-group comparison on emotion regulation and DSM-IV measures. Greater numbers would be needed for more complex analysis of these between-groups measures.

4.5.2 Limitations of measures

The Emotion Regulation Questionnaire was standardized within a population of normal adolescents. Many of the external dysfunctional regulation strategies

enquired about reflect stereotypically adolescent behaviour, such as "taking feelings out on others (shouting/arguing/fighting)", and may account for the skewed data on this scale.

As noted previously, the DSM-IV checklist for mania applied to an episode of love is limited in use out-with the context of a structured clinical interview and is therefore used in this study as a crude diagnostic measure only.

4.6 Future research

Adolescence is a developmental period typically associated with emotional turbulence particularly within the context of interpersonal relationships. Lee (1976) noted that Mania tends to be the first love style of adolescents, as they being to experience the excitement and adventure of love. It may therefore be of interest to replicate this study with an adolescent group (either using a longitudinal within subjects design or a between groups cross-sectional design with different age groups) focusing on use of emotion regulation strategies with a view to charting their development over time.

In order to develop the ideas outlined in the above discussion, exploration of early attachment relationships and how they relate to current psychological functioning in bipolar disorder may provide a broader understanding of the way in which the illness manifests itself idiosyncratically, and how attachment patterns relate to the way individuals cope with the psychological disruption of mania.

Replication of this study with subjects who are currently in love or hypomanic, as opposed to the retrospective nature of the design utilised here, would circumvent the problems highlighted above regarding the impact of recall bias on accurate report of psychological states, and may capture a truer representation of the psychological nature of love and hypomania.

4.7 Conclusions

This thesis has demonstrated that love and mania share similarities in their profile of psychological disruption. It is proposed that attachment theory is a useful framework for conceptualising the psychopathology of love as well as the idiosyncratic manifestation of bipolar disorder. It has been shown from the study of both control and bipolar subjects' recall of episodes of love and mania that the two states share similar patterns of symptoms, though in control subjects love appears to be more akin to the lesser state of hypomania. It may be that emotion regulation strategies serve to amplify or dampen the severity of pathology in both states, and hence are implicated in the clinical management of mania in bipolar disorder.

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Appendices

Bipolar I Disorder

Single Manic Episode

A. Presence of only one Manic Episode and no past Major Depressive Episodes.

Note: Recurrence is defined as either a change in polarity from depression or an interval of at least 2 months without manic symptoms.

B. The Manic Episode is not better accounted for by Schizoaffective Disorder and is not superimposed on Schizophrenia, Schizophreniform Disorder, Delusional Disorder, or Psychotic Disorder Not Otherwise Specified.

Most Recent Episode Hypomania

A. Currently (or most recently) in a Hypomanic Episode

B. There has previously been at least one Manic Episode or Mixed Episode.

C. The mood symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

D. The mood episodes in Criteria A and B are not better accounted for by Schizoaffective Disorder and is not superimposed on Schizophrenia, Schizophreniform Disorder, Delusional Disorder, or Psychotic Disorder Not Otherwise Specified.

Most Recent Episode Manic

A. Currently (or most recently) in a Manic Episode.

B. There has previously been at least one Major Depressive Episode, Manic Episode, or Mixed Episode.

C. The mood episodes in Criteria A and B are not better accounted for by Schizoaffective Disorder and is not superimposed on Schizophrenia, Schizophreniform Disorder, Delusional Disorder, or Psychotic Disorder Not Otherwise Specified.

Most Recent Episode Mixed

A. Currently (or most recently) in a Mixed Episode.

B. There has previously been at least one Major Depressive Episode, Manic Episode, or Mixed Episode.

C. The mood episodes in Criteria A and B are not better accounted for by Schizoaffective Disorder and is not superimposed on Schizophrenia, Schizophreniform Disorder, Delusional Disorder, or Psychotic Disorder Not Otherwise Specified.

Most Recent Episode Depressed

A. Currently (or most recently) in a Major Depressive Episode.

B. There has previously been at least one Manic Episode or Mixed Episode.

C. The mood episodes in Criteria A and B are not better accounted for by Schizoaffective Disorder and is not superimposed on Schizophrenia, Schizophreniform Disorder, Delusional Disorder, or Psychotic Disorder Not Otherwise Specified.

Most Recent Episode Unspecified

A. Criteria, except for duration, are currently (or most recently) met for a Manic, a Hypomanic, a Mixed, or a Major Depressive Episode.

B. There has previously been at least one Manic Episode or Mixed Episode.

C. The mood symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

D. The mood episodes in Criteria A and B are not better accounted for by Schizoaffective Disorder and is not superimposed on Schizophrenia, Schizophreniform Disorder, Delusional Disorder, or Psychotic Disorder Not Otherwise Specified.

Diagnostic Criteria – Bipolar II Disorder

A. Presence (or history) of one or more Major Depressive Episodes.

B. Presence (or history) of at least one Hypomanic Episode.

C. There has never been a Manic Episode or a Mixed Episode.

D. The mood episodes in Criteria A and B are not better accounted for by Schizoaffective Disorder and is not superimposed on Schizophrenia, Schizophreniform Disorder, Delusional Disorder, or Psychotic Disorder Not Otherwise Specified.

E. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Diagnostic Criteria For Mood Episodes

Major Depressive Episode:

A. Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure.

Note: Do not include symptoms that are clearly due to a general medical condition, or mood-incongruent delusions or hallucinations.

1. depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad or empty) or observation made by others (e.g., appears tearful). Note: In children and adolescents, can be irritable mood.

2. markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation made by others)

3. significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day. **Note:** In children, consider failure to make expected weight gains.

4. insomnia or hypersomnia nearly every day

5. psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down)

6. fatigue or loss of energy nearly every day

7. feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick)

8. diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others)

9. recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide

B. The symptoms do not meet criteria for a Mixed Episode

C. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

D. The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hypothyroidism).

E. The symptoms are not better accounted for by Bereavement, i.e., after the loss of a loved one, the symptoms persist for longer than 2 months or are characterized by marked functional impairment, morbid preoccupation with worthlessness, suicidal ideation, psychotic symptoms, or psychomotor retardation.

Manic Episode:

A. A distinct period of abnormally and persistently elevated, expansive, or irritable mood, lasting at least 1 week (or any duration if hospitalization is necessary).

B. During the period of mood disturbance, three (or more) of the following symptoms have persisted (four if the mood is only irritable) and have been present to a significant degree:

1. inflated self-esteem or grandiosity
2. decreased need for sleep (e.g., feels rested after only 3 hours of sleep)
3. more talkative than usual or pressure to keep talking
4. insomnia or hypersomnia nearly every day
5. psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down)
6. flight of ideas or subjective experience that thoughts are racing
7. distractibility (i.e., attention too easily drawn to unimportant or irrelevant external stimuli)
8. increase in goal-directed activity (either socially, at work or school, or sexually) or psychomotor agitation

9. excessive involvement in pleasurable activities that have a high potential for painful consequences (e.g., engaging in unrestrained buying sprees, sexual indiscretions, or foolish business investments)

C. The symptoms do not meet criteria for a Mixed Episode

D. The mood disturbance is sufficiently severe to cause marked impairment in occupational functioning or in usual social activities or relationships with others, or to necessitate hospitalization to prevent harm to self or others, or there are psychotic features.

E. The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication, or other treatment) or a general medical condition (e.g., hyperthyroidism).

Mixed Episode:

A. The criteria are met both for a Manic Episode and for a Major Depressive Episode (except for duration) nearly every day during at least a 1-week period.

B. The mood disturbance is sufficiently severe to cause marked impairment in occupational functioning or in usual social activities or relationships with others, or to necessitate hospitalization to prevent harm to self or others, or there are psychotic features.

C. The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication, or other treatment) or a general medical condition (e.g., hyperthyroidism).

Hypomanic Episode:

A. A distinct period of persistently elevated, expansive, or irritable mood, lasting throughout at least 4 days, that is clearly different from the usual nondepressed mood.

B. During the period of mood disturbance, three (or more) of the following symptoms have persisted (four if the mood is only irritable) and have been present to a significant degree:

1. inflated self-esteem or grandiosity
2. decreased need for sleep (e.g., feels rested after only 3 hours of sleep)
3. more talkative than usual or pressure to keep talking

4. flight of ideas or subjective experience that thoughts are racing

5. distractibility (i.e., attention too easily drawn to unimportant or irrelevant external stimuli)

6. increase in goal-directed activity (either socially, at work or school, or sexually) or psychomotor agitation

7. excessive involvement in pleasurable activities that have a high potential for painful consequences (e.g., the person engages in unrestrained buying sprees, sexual indiscretions, or foolish business investments)

C. The episode is associated with an unequivocal change in functioning that is uncharacteristic of the person when not symptomatic.

D. The disturbance in mood and the change in functioning are observable by others.

E. The episode is not severe enough to cause marked impairment in social or occupational functioning, or to necessitate hospitalization, and there are no psychotic features.

F. The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication, or other treatment) or a general medical condition (e.g., hyperthyroidism).

Note: Hypomanic-like episodes that are clearly caused by somatic antidepressant treatment (e.g., medication, electroconvulsive therapy, light therapy) should not count toward a diagnosis of Bipolar II Disorder.

24th April 2003

Dr Alison Richardson
Chair of LREC
The Spittal Street Centre
22-24 Spittal Street
EDINBURGH EH3 9DU.

Dear Dr Richardson,

Re: LREC/2001/7/31 " Comparison of the Impact of High-maintenance Chronic Illness on Cognitive Processing and Quality of Life"
and LREC/97/7/7 "Early Warning Signs and Relapse in Manic Depressive Disorders"

Further to our previous ethical approval for our intervention and evaluation of treatment for people with bipolar disorders, we are seeking permission to include an additional measure within our assessment of people with bipolar disorders.

The proposal is also to include a measure of emotion regulation that we have developed recently, with the assessment being carried out by Ms Eleanor Sutton who will write it up as part of her Doctorate in Clinical Psychology thesis. The measure will be included as part of our routine assessment of individuals going through the programme so will not involve any additional assessment interviews.

We are happy to provide you with a copy of the measure if you could let me know if this is necessary.

Yours sincerely,

Professor Mick Power.

LOTHIAN RESEARCH ETHICS COMMITTEE

CERTIFICATE OF ETHICAL REVIEW

LREC Reference Number: LREC/2001/7/31
Title: Comparison of the impact of high-maintenance chronic illness on cognitive processing and quality of life
Researcher: Dr Matthias Schwannauer

The Psychiatry/Clinical Psychology Research Ethics Sub-Committee reviewed this proposed study and has agreed that it is ethical and appropriate to be carried out in the Lothian Area. This opinion encompasses all aspects of the application including the Patient/Subject Information Sheet and all other accompanying documentation provided.

The LREC application form, protocol, subject information sheet, information on compensation arrangements, payments to researchers and the provision of expenses to subjects (where appropriate) were reviewed and approved.

The membership of the Psychiatry/Clinical Psychology Research Ethics Sub-Committee is shown on the attached sheet.

It is a condition of this opinion that you **must** obtain appropriate management approval from the relevant NHS body under the auspices of which the research is intended to take place **before** starting the study. It is that NHS body which has the responsibility of deciding whether or not the research should go ahead taking account of the advice of the Local Research Ethics Committee. It is also a condition that you are required to notify the Psychiatry/Clinical Psychology Research Ethics Sub-Committee **and** the relevant NHS body, in advance, of any significant proposed deviation from the original protocol or application form. Reports to the Sub-Committee and the relevant NHS body are also required once the research is underway if there are any unusual or unexpected results which raise questions about the safety of the research.

Researchers are also required to report on success, or difficulties, in recruiting subjects in order to provide useful feedback on perceptions of the project among patients and volunteers.

Peter Reith
Secretary
Lothian Research Ethics Committee

18 December 2001

Annette Harris
Administrator
Psychiatry/Clinical Psychology
Research Ethics Sub-Committee

The Psychiatry/Clinical Psychology Research Ethics Sub-Committee is fully compliant with the International Committee on Harmonisation/Good Clinical Practice (ICH) Guidelines for the Conduct of Trials Involving the Participation of Human Subjects as they relate to the responsibilities, composition, function, operations and records of an Independent Ethics Committee/Independent Review Board. To this end it undertakes to adhere as far as is consistent with its Standing Orders, to the relevant clauses of the ICH Harmonised Tripartite Guideline for Good Clinical Practice, adopted by the Commission of the European Union on 17 January 1997. The Membership List, Standing Orders and Statement of Compliance were included on the computer disk containing the guidelines and application procedures available on request.

LOTHIAN health

UR REF: LREC/1997/7/7 YOUR REF
.EASE QUOTE THE ABOVE REFERENCE ON ALL CORRESPONDENCE

)r Matthias Schwannauer
:linical Psychologist
)epartment of Psychiatry
.oyal Edinburgh Hospital
Jniversity of Edinburgh
dinburgh EH10 5HF

29 August 2000

ear Dr Schwannauer

REC/97/7/7: Early Warning signs and Relapse in Manic Depressive isorders

ıank you for submitting the amendment dated 6 August 2000 in respect of the above ·otocol. The Chairman of the Psychiatry/Clinical Psychology Research Ethics Sub-)mmittee, acting under delegated authority, has agreed that the study may continue. ıis approval encompasses all aspects of the amendment including any changes :cessary to the Patient/Subject Information Sheet and other accompanying cumentation.

is also necessary for you to notify any relevant NHS bodies from whom Management)proval for this study was obtained.

condition of this approval is that you are required to notify the Sub-Committee, in vance, of any significant proposed deviation from the original protocol. Reports to ə Sub-Committee are also required once the research is underway if there are any usual or unexpected results which raise questions about the safety of the research.

addition, researchers are required to report on success, or difficulties, in recruiting)jects in order to provide useful feedback on perceptions of the project among :ients and volunteers.

ə Psychiatry/Clinical Psychology Research Ethics Sub-Committee is fully compliant .h the International Committee on Harmonisation/Good Clinical Practice (ICH) idelines for the Conduct of Trials Involving the Participation of Human Subjects as y relate to the responsibilities, composition, function, operations and records of an ependent Ethics Committee/Independent Review Board. To this end it undertakes ıdhere as far as is consistent with its Standing Orders, to the relevant clauses of ICH Harmonised Tripartite Guideline for Good Clinical Practice, adopted by the nmission of the European Union on 17 January 1997. The Membership List,

AN HEALTH BOARD
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ıding Orders and Statement of Compliance were included on the computer disk
aining the guidelines and application form and are available on request.

rs sincerely

Annette Harris

NETTE HARRIS
inistrator
hiatry/Clinical Psychology Research Ethics Sub-Committee

nan: Mr Garth Morrison C.B.E.
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Dr Schwannauer and Professor Power

/97 **Early Warning signs and relapse in manic depressive disorder**

r to your letter advising that you had requested an extension to the above project from the an Research Ethics Sub-committee and I note that this extension has now been approved. e note that I can also confirm management approval from Lothian Primary Care NHS

sincerely

G Webster

D PIGOTT
F EXECUTIVE

I am carrying out a research project looking at the similarities and differences between the experience of being in love or infatuated with someone and the experience of mania. I would be very grateful for your participation with this in filling out the attached questionnaires. I would also like to talk to you about your experiences in more detail. This is optional. Only if you are happy for me to do so, please fill in your name and a contact number, otherwise please return the questionnaire anonymously. Your participation is entirely voluntary and is in no way related to your contact with the bipolar service. Completed questionnaires will be not be kept after the data is analysed.

- The first questionnaire asks about how your general health is at present.
- The second questionnaire asks about how in general you respond to your emotions.
- In order to complete the third questionnaire I would like you to try to think back to a time when you were in love or infatuated with someone and note whether or not you were aware of any of the changes listed. There are two copies of this questionnaire, and if you can I would like you to fill in both, the first about a time when the person you were in love or infatuated with reciprocated your feelings, and the second about a time when your feelings were unreciprocated.
- I would like you to complete the fourth questionnaire in the same way as the third one, that is to think about a time when you were in love or infatuated with someone and note whether or not you were aware of any of the changes listed. Once again, there are two copies of this questionnaire and if you can I would like you to fill in both, the first about a time when the person you were in love or infatuated with reciprocated your feelings, and the second about a time when your feelings were unreciprocated.

Thank you for your time and participation,

Eleanor Sutton
Trainee Clinical Psychologist
Kennedy Tower
Royal Edinburgh Hospital
(0131) 5376364 / (0131) 5376501

NAME: ..... (optiona l)

AGE:

MALE ☐ **FEMALE** ☐

HOW LONG AGO WAS THE EPISODE OF RECIPROCATED LOVE THAT YOU HAVE USED TO ANSWER THIS QUESTIONNAIRE?

HOW LONG AGO WAS THE EPISODE OF UNRECIPROCATED LOVE THAT YOU HAVE USED TO ANSWER THIS QUESTIONNAIRE?

ARE YOU CURRENTLY IN A RELATIONSHIP? YES ☐ **NO** ☐

ARE YOU HAPPY FOR ME TO CONTACT YOU TO ASK YOU ABOUT YOUR EXPERIENCES IN MORE DETAIL? YES ☐ **NO** ☐

IF YES, PHONE NUMBER .....

HOW YOU RESPOND TO YOUR EMOTIONS

PART A

We all experience lots of different feelings or emotions. For example, different things in our lives make us feel happy, sad, angry and so on...

The following questions ask you to think about **how often** you do certain things **in response to your emotions**. You do not have to think about specific emotions but just how often you **generally** do the things listed below.

We all respond to our emotions in different ways so there are no right or wrong answers.

	Never	Seldom	Quite Often	Very Often	Always
1. I try to see a positive side	☐	☐	☐	☐	☐
2. I talk to someone about how I feel	☐	☐	☐	☐	☐
3. I pretend the situation doesn't exist	☐	☐	☐	☐	☐
4. I take my feelings out on others verbally (e.g. shouting, arguing)	☐	☐	☐	☐	☐
5. I eat too much	☐	☐	☐	☐	☐
6. I seek physical contact from friends or family (e.g. a hug, hold hands)	☐	☐	☐	☐	☐

	Never	Seldom	Quite Often	Very Often	Always
7. I review (rethink) my thoughts or beliefs	☐	☐	☐	☐	☐
8. I harm or punish myself in some way	☐	☐	☐	☐	☐
9. I do something energetic (e.g. play sport, go for a walk)	☐	☐	☐	☐	☐
10. I avoid everything that makes me feel bad	☐	☐	☐	☐	☐
11. I dwell on my thoughts and feelings (e.g. It goes round and round in my head and I can't stop it)	☐	☐	☐	☐	☐
12. I change my environment (e.g. go outside, leave the room)	☐	☐	☐	☐	☐

	Never	Seldom	Quite Often	Very Often	Always
13. I drink or take drugs alone	☐	☐	☐	☐	☐
14. I ask others for advice	☐	☐	☐	☐	☐
15. I review (rethink) my goals or plans	☐	☐	☐	☐	☐
16. I take my feelings out on others physically (e.g. fighting, lashing out)	☐	☐	☐	☐	☐
17. I stop myself from eating	☐	☐	☐	☐	☐
18. I put the situation into perspective	☐	☐	☐	☐	☐
19. I concentrate on a pleasant activity	☐	☐	☐	☐	☐

	Never	Seldom	Quite Often	Very Often	Always
20. I help others in order to make myself feel better	☐	☐	☐	☐	☐
21. I force myself to feel something else	☐	☐	☐	☐	☐
22. I do something peaceful and relaxing	☐	☐	☐	☐	☐
23. I try to make others feel bad (e.g. being rude, ignoring them)	☐	☐	☐	☐	☐
24. I think about people better off and make myself feel worse	☐	☐	☐	☐	☐

	Never	Seldom	Quite Often	Very Often	Always
25. I plan what I could do better next time	☐	☐	☐	☐	☐
26. I keep this feeling to myself until it's appropriate for me to express it	☐	☐	☐	☐	☐
27. I resign myself to my fate	☐	☐	☐	☐	☐
28. I keep the feeling locked up inside	☐	☐	☐	☐	☐
29. I think about people worse off than myself	☐	☐	☐	☐	☐
30. I bully other people (e.g. saying nasty things to them, hitting them)	☐	☐	☐	☐	☐
31. I take my feelings out on objects around me (e.g. deliberately causing damage to my house or outdoor things)	☐	☐	☐	☐	☐
32. Things feel unreal (e.g. I feel strange, things around me feel strange, I daydream)	☐	☐	☐	☐	☐

Please try to think of a time when you were in love or infatuated with someone when your feelings ***WERE*** reciprocated by the other person, and note whether or not you were aware of any of the following changes.

In some cases you may wish to choose more than one item for each section, for example, for Question 1 (activity-physical) you might have felt more active for some of the time but less active for the rest of the time, in which case you should circle the numbers next to the two items that most closely applied.

'A' ITEMS	'B' ITEMS

1. ACTIVITY - PHYSICAL

0 ☐ I was no more or less active than usual and I think I appeared calm

☐ I was slightly more active than usual	☐ I was slightly less active than usual
☐ I was moderately more active than usual	☐ I was moderately less active than usual
☐ I was considerably more active than usual	☐ I was considerably less active than usual
☐ I was excessively active and constantly driven to movement	☐ I was virtually inactive and felt exhausted

2. ACTIVITY - VERBAL:

☐ I engaged in conversation and talked normally

☐ I talked slightly more often and more rapidly in conversation	☐ I talked slightly less than usual in conversation
☐ I noticed a moderate increase in the rate and the amount I talked	☐ I noticed a moderate decrease in the rate and the amount I talked
☐ I felt very talkative	☐ I noted a considerable decrease in my speech
☐ I couldn't stop myself talking	☐ I hardly said anything

3. THOUGHT PROCESSES

☐ My mind was alert and my speech coherent and easy to follow

☐ My thoughts seemed to move a little faster. I sometimes deviated from my main topic of conversation .	☐ I felt there was a slight slowing of my thoughts and my speech
☐ My thoughts were going fast and I regularly deviated from my main topic of conversation	☐ I felt a moderate slowing of my thoughts and speech
☐ My thoughts were going very fast and I often deviated from my main topic of conversation	☐ I noticed longer gaps between my sentences
☐ I was constantly distracted by the speed of my thoughts	☐ I had virtually nothing to say and my mind felt empty and blank

4. VOICE LEVEL: ☐ The volume of my voice was the same as usual, I spoke clearly and regulated my voice level according to the environment.

☐ I spoke somewhat more loudly than usual	☐ I spoke somewhat more quietly than usual
☐ I spoke considerably more loudly than usual	☐ I spoke so quietly that others had to strain a little to hear
☐ I spoke very loudly, with little attention to the immediate environment	☐ I spoke very quietly, a lot more quietly than usual
☐ I felt like shouting and screaming and making lots of noise	☐ The volume of my voice was almost impossible for others to hear

5. MOOD : ☐- The mood that I experienced was very much a normal, neutral mood

- ☐ My mood was a little better than usual
- ☐ I felt slightly elated
- ☐ I felt elated, emotionally high, joyful and exuberant
- ☐ I was so high that I was out of touch with my situation
- ☐ My mood was slightly lower than usual
- ☐ I felt miserable
- ☐ I was really down and I often felt like crying
- ☐ I was completely down and felt a sense of utter depression and gloom

6. SELF-ESTEEM: ☐- My feelings of self-worth and esteem were the same as usual

- ☐ My self-esteem had slightly increased
- ☐ My self-esteem had increased considerably
- ☐ I felt that I was greatly admired and respected by other people and that I had particular talents or abilities
- ☐ I had grandiose ideas which I could not be dissuaded from.
- ☐ My self-esteem had slightly decreased
- ☐ My self-esteem had considerably decreased
- ☐ My estimation of my own self-worth and abilities was extremely low
- ☐ I hated myself and felt worthless. My sense of self was so distorted that I could see no way to improve my situation

7. CONTACT: ☐-I had normal emotional contact with others

- ☐ I felt sociable and tried to meet people
- ☐ I chose to meet people but often became irritable and argumentative with them
- ☐ I felt very sociable and outgoing but behaved in a dominating way with others
- ☐ I constantly wanted to be with people but they did not like my dominating behaviour
- ☐ I had a reduced wish or ability to be with people and was slightly withdrawn.
- ☐ I didn't feel like being with people. I had withdrawn to a moderate degree
- ☐ I felt isolated yet emotionally indifferent to others, even to friends and family, and I was withdrawing from everyone
- ☐ I felt totally isolated yet wanted no human contact. I was withdrawing from even the most important aspects of life.

8. SLEEP: ☐ My sleep was normal

- ☐ I took longer to fall asleep at night
- ☐ I often woke up in the night but slept longer than usual
- ☐ I woke up before my usual time in the morning, but I slept longer overall and felt tired during the day
- ☐ I wanted to sleep most of the time
- ☐ I had difficulty falling asleep at night
- ☐ I had difficulty falling asleep and woke up frequently
- ☐ My sleep was extremely disturbed having a marked effect on the way I felt during the day
- ☐ My inability to sleep properly was a major preoccupation and seemed to affect everything I did

9. SEXUAL INTEREST:

☐ My level of sexual interest and activity was the same as usual

- ☐ There was a slight increase in my level of sexual interest and activity
- ☐ There was a moderate increase in my level of sexual interest and activity
- ☐ There was a marked increase in my level of sexual interest and impulsiveness in sexual activity
- ☐ I was disinhibited and felt sexual constantly
- ☐ There was a slight decrease in my level of sexual interest and activity
- ☐ There wasa moderate decrease in my level of sexual interest and activity
- ☐ There was a marked decrease in my level of sexual interest and activity
- ☐ I had no interest whatsoever in sex and felt repulsed by the idea.

10. EATING HABITS : ☐ My eating habits were about the same as is usual for me, in amount, regularity and rate of eating

- ☐ My appetite was slightly decreased. I was eating slightly less than usual
- ☐ I felt moderately less desire for food than usual and ate more slowly
- ☐ I had to force myself to eat my much reduced intake of food
- ☐ I had no need for food at all and ate very little or nothing
- ☐ My appetite was slightly increased and I ate more, faster and more often
- ☐ I felt a moderately greater desire for food than usual and ate more quickly
- ☐ I was eating much more and more often than is usual for me
- ☐ I was completely preoccupied by food with a marked increase in how much, how often and how fast I ate

11. WEIGHT CHANGE:

☐ I weighed about the same as is usual for me

☐ I felt that I a was losing weight, but not noticeably so
☐ My weight was noticeably less than usual
☐ I had lost a great deal of weight
☐ My weight was very noticeably lower than was usual for me. I was worried about the amount of weight I had lost

☐ I felt that I was putting on weight, but not noticeably so
☐ My weight was noticeably more than usual
☐ I had put on a great deal of weight
☐ My weight was very noticeably greater than is usual for me. I was worried about the amount of weight that I had put on

12. **MEANING:** ☐ I had not noticed any change in what I regard as important in my life

☐ I had noticed certain everyday things meant more to me
☐ I had noticed more significance in certain things that I would normally
☐ I had become aware of great significance becoming attached to things/events/people
☐ I felt that I had a more profound understanding and/or awareness and I was convinced of my pivotal role in the scheme of things

☐ I had some doubts about what is meaningful in my life
☐ Questions of meaning and purpose were of concern to me
☐ I was frequently concerned that there no meaning or purpose to life
☐ My life felt completely without meaning or purpose

13 ANXIETY : ☐ I felt no more or less anxious, insecure or tense than usual

☐ I felt more anxious than usual
☐ I felt I was in a state of anxiety which was difficult to control and which interfered with my daily life
☐ My feelings of anxiety and experience of inner unrest, nervousness and panic often interfered with my daily life
☐ Feelings of panic were present so often that they constantly interfered with my daily life

☐ I felt less anxious than usual
☐ I felt much less anxious than usual
☐ I felt positively more relaxed and worry about things a lot less
☐ I felt remarkably calm and tranquil

14. FEELINGS OF PRESSURE :

☐ I felt that there was no more or less pressure on me than usual

☐ I wasputting myself under slightly less pressure than usual
☐ I did not feel under pressure
☐ I felt detached from my responsibilities
☐ I had no feeling of pressure at all and feel completely separate and detached from any sense of responsibility

☐ I was putting myself under slightly more pressure than usual
☐ I felt under pressure
☐ I felt a strong sense of responsibility and that it was important that I try to satisfy and respond to all the pressures and demands upon me
☐ I had to keep going though under the weight of enormous pressure

15. PASSAGE OF TIME : ☐- My perception of the passing of time was no different than usual

☐ Time seemed to be passing slower than usual
☐ I felt unable to fill all of my time constructively
☐ Time dragged so much and passed so slowly that I dreaded the future
☐ I felt almost as if time had stopped and that the future would not happen

☐ Time seemed to be passing more quickly than usual
☐ I was fully occupied and I feared I would not fit everything in that I wanted to
☐ Time was passing so quickly that I felt pressured to keep up
☐ Time was flying by so fast that I didnt have time to stop and think

16. FUTURE PLANS :

☐ My ability to plan for the future was the same as usual for me

☐ I was slightly more able than usual to make plans for the future
☐ I was thinking of more future plans than usual
☐ My head was full of many plans and ideas
☐ I couldnt stop myself from constantly thinking of unrealistic plans for the future
☐ I occasionally questioned whether I should plan for the future
☐ I sometimes thought there was no point in planning for the future
☐ I frequently thought there was no point in planning for the future
☐ The future seemed completely hopeless to me

17. PAIN SENSITIVITY :

☐- My sensitivity to pain was the same as usual for me

☐ I felt slightly less sensitive to pain than usual
☐ I definitiely felt less sensitive to pain than usual
☐ My capacity to tolerate pain felt very high
☐ I felt incapable of experiencing pain ever again
☐ I felt slightly more sensitive to pain than usual
☐ I definitely felt more sensitive to pain than usual
☐ My capacity to tolerate pain felt extremely low
☐ I felt completely overrun with pain

18. WORK :

☐ My capacity for work was the same as usual for me

☐ I had a slightly increased capacity for work
☐ I had a greatly increased capacity for work
☐ My capacity for work was extremely high
☐ I felt I had an infinite capacity for work and could take on anything
☐ I had a slightly decreased capacity for work
☐ I had a greatly decreased capacity for work
☐ My capacity for work was extremely low
☐ I had no capacity for work whatsoever and the slightest demand overwhelms me

GENERAL HEALTH QUESTIONNAIRE

Please read this carefully:

I would like to know if you have had any medical complaints, and how your health has been in general, *over the past few weeks*. Please answer *all* the questions simply by checking the answer which you think most closely applies to you.

HAVE YOU RECENTLY:

Lost much sleep over worry?	Not at all ☐	No more than usual ☐	Rather more than usual ☐	Much more than usual ☐
Felt constantly under strain?	Not at all ☐	No more than usual ☐	Rather more than usual ☐	Much more than usual ☐
Been able to concentrate on whatever you are doing?	Better than Usual ☐	Same as Usual ☐	Less than Usual ☐	Much less than usual ☐
Felt that you are playing a useful part in things?	More so than usual ☐	Same as Usual ☐	Less useful than usual ☐	Much less useful ☐
Been able to face up to your problems?	More so than usual ☐	Same as Usual ☐	Less able than usual ☐	Much less able ☐
Felt capable of making decisions about things?	More so than usual ☐	Same as Usual ☐	Less capable than usual ☐	Much less capable ☐
Felt that you couldn't overcome your difficulties?	Not at all ☐	No more than usual ☐	Rather more than usual ☐	Much more than usual ☐
Been feeling reasonably happy, all things considered?	More so than usual ☐	About the same as usual ☐	Less so than usual ☐	Much less than usual ☐
Been able to enjoy your day-to-day activities?	More so than usual ☐	Same as Usual ☐	Less so than usual ☐	Much less than usual ☐
Been feeling unhappy and depressed?	Not at all ☐	No more than usual ☐	Rather more than usual ☐	Much more than usual ☐
Been losing confidence in yourself?	Not at all ☐	No more than usual ☐	Rather more than usual ☐	Much more than usual ☐
Been thinking of yourself as a worthless person?	Not at all ☐	No more than usual ☐	Rather more than usual ☐	Much more than usual ☐

Please try and think back to a time when you were in love or infatuated with another person when your feelings *WERE* reciprocated by the other person, and tick whether you experienced any of the following:

☐ A distinct period of abnormally and persistently elevated, expansive or irritable mood, lasting at least 1 week

OR

☐ A distinct period of abnormally and persistently elevated, expansive or irritable mood, lasting throughout at least 4 days that is clearly different from your normal non-depressed mood

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During the period of mood disturbance, were any of the following symptoms persistent and present to a significant degree? (tick all that apply)

☐ inflated self-esteem or grandiosity

☐ decreased need for sleep

☐ more talkative than usual or pressure to keep talking

☐ flight of ideas or subjective experience that thoughts are racing

☐ distractibility (i.e. attention too easily drawn to unimportant or irrelevant stimuli)

☐ increase in goal-directed activity (either socially, at work or school, or sexually) or agitation/restlessness

☐ excessive involvement in pleasurable activities that have a high potential for painful consequences (e.g. engaging in unrestrained buying sprees, sexual indiscretions or foolish business investments)

☐ The mood disturbance was sufficiently severe to cause marked impairment in occupational functioning or in usual social activities or relationships with others

OR

☐ The episode was not severe enough to cause marked impairment in social or occupational functioning

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☐ The symptoms were not due to the direct physiological effect of a substance (e.g. a drug of abuse, a medication or other treatment) or a general medical condition (e.g. hyperthyroidism)

☐ The episode was associated with an unequivocal change in functioning that is uncharacteristic of you

☐ The disturbance in mood and the change in functioning were observable by others

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Skew and kurtosis in unreciprocated love and manic episode

Descriptive Statistics: BLIP mania items in unreciprocated love

	N	Mean	Std.	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
activity - physical	17	.65	1.169	1.856	.550	3.089	1.063
activity - verbal	17	.41	.795	2.439	.550	6.751	1.063
thought processes	17	.29	.772	3.107	.550	10.261	1.063
voice level	17	.29	.985	3.768	.550	14.612	1.063
mood	17	.41	1.004	2.375	.550	4.445	1.063
self-esteem	17	.35	.786	1.866	.550	1.665	1.063
contact	17	.29	.985	3.768	.550	14.612	1.063
sleep	17	.24	.562	2.473	.550	5.840	1.063
sexual interest	17	.82	1.334	1.795	.550	2.387	1.063
eating habits	17	.41	.939	2.083	.550	3.128	1.063
weight change	17	.12	.485	4.123	.550	17.000	1.063
meaning	17	.29	.772	3.107	.550	10.261	1.063
anxiety	17	1.00	.935	1.039	.550	.863	1.063
feelings of pressure	17	.24	.970	4.123	.550	17.000	1.063
passage of time	17	.65	.931	1.354	.550	1.081	1.063
future plans	17	.41	.939	2.083	.550	3.128	1.063
pain sensitivity	17	.12	.485	4.123	.550	17.000	1.063
work	17	.24	.752	3.555	.550	13.052	1.063
Valid N (listwise)	17						

Descriptive Statistics: BLIP depression items in unreciprocated love

	N	Mean	Std.	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
activity - physical	17	1.00	1.275	1.641	.550	2.206	1.063
activity - verbal	17	1.12	1.409	1.133	.550	.139	1.063
thought processes	17	.88	1.317	1.730	.550	2.270	1.063
voice level	17	.65	1.169	2.122	.550	4.086	1.063
mood	17	1.65	1.272	.969	.550	.106	1.063
self-esteem	17	1.65	1.272	.556	.550	-.483	1.063
contact	17	1.18	1.237	.972	.550	.162	1.063
sleep	17	1.12	1.317	.873	.550	-.378	1.063
sexual interest	17	.59	1.121	2.162	.550	4.692	1.063
eating habits	17	.47	.800	2.184	.550	5.660	1.063
weight change	17	.82	1.380	1.650	.550	1.679	1.063
meaning	17	1.18	1.334	.890	.550	-.476	1.063
anxiety	17	.35	.996	3.469	.550	12.747	1.063
feelings of pressure	17	1.18	1.510	.897	.550	-.723	1.063
passage of time	17	.41	.795	2.439	.550	6.751	1.063
future plans	17	1.24	1.562	.895	.550	-.637	1.063
pain sensitivity	17	.53	1.179	2.385	.550	4.994	1.063
work	17	1.35	1.320	.915	.550	.029	1.063
Valid N (listwise)	17						

Descriptive Statistics: BLIP mania items in last manic/hypomanic episode

	N	Mean	Std.	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
activity - physical	14	2.50	1.092	-.827	.597	.883	1.154
activity - verbal	14	2.64	1.393	-.842	.597	-.091	1.154
thought processes	14	1.79	1.122	-.276	.597	-1.310	1.154
voice level	14	.93	1.141	1.608	.597	3.094	1.154
mood	14	2.36	1.277	-.791	.597	-.129	1.154
self-esteem	14	2.00	1.177	-.330	.597	-.394	1.154
contact	14	1.36	1.008	.718	.597	-.413	1.154
sleep	14	.29	.469	1.067	.597	-1.034	1.154
sexual interest	14	1.07	1.385	1.070	.597	-.140	1.154
eating habits	14	.29	1.069	3.742	.597	14.000	1.154
weight change	14	.64	1.151	2.243	.597	5.372	1.154
meaning	14	2.21	1.369	-.238	.597	-.910	1.154
anxiety	14	.79	1.122	.868	.597	-1.045	1.154
feelings of pressure	14	1.43	1.604	.477	.597	-1.451	1.154
passage of time	14	.14	.535	3.742	.597	14.000	1.154
future plans	14	1.71	1.267	-.433	.597	-1.535	1.154
pain sensitivity	14	.29	.825	3.205	.597	10.558	1.154
work	14	2.21	1.477	-.261	.597	-1.547	1.154
Valid N (listwise)	14						

Descriptive Statistics: BLIP depression items in last manic/hypomanic episode

	N	Mean	Std.	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
activity - physical	14	.14	.535	3.742	.597	14.000	1.154
activity - verbal	14	.36	.929	2.503	.597	5.412	1.154
thought processes	14	.29	1.069	3.742	.597	14.000	1.154
voice level	14	.00	.000	.	.	.	.
mood	14	.43	1.158	2.803	.597	7.679	1.154
self-esteem	14	.43	1.089	2.295	.597	3.792	1.154
contact	14	.43	1.089	2.295	.597	3.792	1.154
sleep	14	1.50	1.401	.294	.597	-1.300	1.154
sexual interest	14	.86	1.460	1.324	.597	.113	1.154
eating habits	14	1.21	1.251	.356	.597	-1.610	1.154
weight change	14	.43	1.089	2.295	.597	3.792	1.154
meaning	14	.21	.802	3.742	.597	14.000	1.154
anxiety	14	1.36	1.393	.244	.597	-1.987	1.154
feelings of pressure	14	.86	1.406	1.067	.597	-1.034	1.154
passage of time	14	1.14	1.351	1.012	.597	-.119	1.154
future plans	14	.43	1.089	3.128	.597	10.345	1.154
pain sensitivity	14	.29	.469	1.067	.597	-1.034	1.154
work	14	.50	1.286	2.405	.597	4.654	1.154
Valid N (listwise)	14						

Re-analysis of skewed variables following Natural log transformation

T-Test

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	BLPB10MR	.12	13	.446	.124
	BLPB10R	.14	13	.346	.096

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	BLPB10MR & BLPB10R	13	.833	.000

Paired Samples Test

		Paired Differences		t	df	Sig. (2-tailed)
		Mean	Std. Deviation			
Pair 1	BLPB10MR - BLPB10R	-.01	.248	-.204	12	.842

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	BLPB14MR	.43	13	.666	.185
	BLPB14R	.43	13	.532	.148

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	BLPB14MR & BLPB14R	13	.348	.245

Paired Samples Test

		Paired Differences		t	df	Sig. (2-tailed)
		Mean	Std. Deviation			
Pair 1	BLPB14MR - BLPB14R	.00	.693	.000	12	1.000

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	BLIPB14M	.92	13	1.441	.400
	BLIPB14	.77	13	1.092	.303

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	BLIPB14M & BLIPB14	13	.306	.310

Paired Samples Test

		Paired Differences		t	df	Sig. (2-tailed)
		Mean	Std. Deviation			
Pair 1	BLIPB14M - BLIPB14	.15	1.519	.365	12	.721

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	BLIPA14M	1.38	13	1.660	.460
	BLIPA14	.00	13	.000	.000

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	BLIPA14M & BLIPA14	13	.	.

Paired Samples Test

		Paired Differences		t	df	Sig. (2-tailed)
		Mean	Std. Deviation			
Pair 1	BLIPA14M - BLIPA14	1.38	1.660	3.007	12	.011